



NetworkWorld

The leader in network knowledge ■ www.nwfusion.com

December 17, 2001 ■ Volume 18, Number 51

Endangered species

The weak economy has decimated the MSP industry, leaving the door wide open to larger providers.

■ BY DENISE DUBIE

Once considered an innovative alternative for outsourcing the management of enterprise networks, start-up management service providers now face possible extinction as industry giants move into their territory.

After burning through tens of millions of dollars over the last few years, MSPs are scrambling for more funding to avoid the fate of Xuma, eManage, App-Genesys and others that have gone the way of the dinosaur. Some, such as Luminate, SiteSmith and FreshWater, have been acquired, while others, such as SevenSpace and StrataSource, have merged.

See MSPs, page 57

Dwindling numbers

The MSP Association has seen its membership drop from a high of 106 to 83.



Excel's dirty little secret

Spreadsheet passwords can be foiled by simply copying and pasting.

■ BY JOHN FONTANA

REDMOND, WASH. — Microsoft Excel, the predominant spreadsheet in use today, contains a feature that could expose sensitive corporate data once the document is distributed within a company or among trading partners.

That feature is drawing an increased level of attention from researchers and Excel users alike as its implications become more fully understood. One expert calls it "as potentially damaging" as many of the most recent viruses.

Excel has features that allow spreadsheet creators to hide, lock

and/or password-protect data and mathematical calculations used in original documents.

See Excel, page 13

Sun prepping storage push

■ BY DENI CONNOR

SANTA CLARA — Sun is expected to unveil a standards-based management suite early next year that is designed to help customers get a better handle on their increasingly complex storage environments.

Sun's initiative will come on the heels of similar recent announcements by vendors such as EMC and Hitachi Data Systems that extend storage management beyond controlling the vendors' hardware, although observers say Sun's effort may be more comprehensive. All of the vendors realize that customers are finding proprietary and point products less useful as they adopt network-attached storage, storage-area networks (SAN) and other new storage technologies.

"There would be some value in having a single place to manage all our storage, including our backups," says Eric LeSatz, vice president of information services at brokerage A.B. Watley in

Allen, Texas. LeSatz uses BMC Software's Patrol to manage Sun StorEdge T3 Arrays, and Veritas NetBackup and Oracle Replication to handle 2 terabytes of direct-attached storage. "I might be enticed to change to Sun software if there were a single package," he says.

Sources within Sun say the company's suite, at least in part, will be called Integrated Storage Management. The umbrella suite, comprising new and existing products, will include four smaller software suites focused on availability, utilization, performance and resource management.

See Sun, page 12



More online!

Read about multivendor storage management plans from EMC and others.

DocFinder: 7465

Net has marquee role in 'Ring'

While the latest motion-capture and digital-animation techniques were widely employed in producing "The Fellowship of the Ring," network technologies such as Gigabit Ethernet and Linux also played prominent roles. **Page 10.**

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MICHELLE BARBERA

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Uproar over new software license model

Read why IBM users are outraged, then let us know if you think Big Blue is playing fair with its new licensing plan.

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Does the DMCA go too far?

Follow the arguments of the Business Software Alliance and the Electronic Frontier Foundation in our Face-Off. Does the Digital Millennium Copyright Act protect rights or restrict creativity? What do you think?

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This month's featured member of the Network World Test Alliance, a software developer and consultant for 29 years, outlines how to ensure that your testing of Windows NT or 2000 is always fair and accurate.

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Test Alliance

We're always looking to expand our roster of Test Alliance experts. Check out the home pages of our current alliance members, and find out how you can join.

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HomePlug products enter the fray
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NetSmart

New partnership, new offerings

LearnKey, a provider of e-learning technology and course content, and *Network World* partner to offer IT training and certification exam simulations.

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We've made it easy to access articles and resources online. Simply enter the four-digit DocFinder number in the search box on the home page, and you'll jump directly to the requested information.

New Bits

PeopleSoft to acquire troubled Calico

■ PeopleSoft last week said it will acquire the assets of troubled software vendor Calico Commerce for \$5 million — a bargain considering the company's stock traded for as much as \$58 per share in January 2000. Calico makes e-commerce software for configuring complex products and services sold online. PeopleSoft already has product configuration software, but it doesn't have the breadth of Calico's Advisor line. The sale is good news for Calico customers, who have been questioning the vendor's viability. Calico's share price hasn't reached \$3 this year, and in July the company was delisted from Nasdaq. As part of the PeopleSoft deal, Calico will file for Chapter 11 bankruptcy protection.

BT taps Lucent's Verwaayen to be CEO

■ British Telecommunications last week named Lucent executive Ben Verwaayen as CEO, replacing Sir Peter Bonfield, who announced his departure in October. Verwaayen will join BT on Jan. 14 as CEO-designate and will fully take over the role on Feb. 1. The 49-year-old Verwaayen is a veteran in the telecommunications industry and most recently served as Lucent's vice chairman. Verwaayen worked as a senior executive for Dutch carrier Koninklijke KPN NV for 10 years prior to joining Lucent in 1997. Bonfield had presided over BT for six years when he announced on Oct. 31 that he would leave a year ahead of schedule.

Security company flags Internet Explorer 'back door'

■ An attacker could trick a user of Microsoft's Internet Explorer Web browser into downloading and running a malicious program by disguising it as an innocent file, a Finnish security company warns. The file name as it appears in the Internet Explorer file download dialog box can be faked by using certain URLs and HTTP headers on a Web page, making users think they are opening a media file when, in fact, they are installing a "back door" on their PC, according to Oy Online Solutions. Internet Explorer won't show the warnings it typically displays when a program file is downloaded or opened because the .exe file extension may have been hidden or replaced with another such as .txt or .htm. The file is run without any warnings because Internet Explorer, just as the user, thinks it is a harmless file, Oy Online Solutions says. Details of the vulnerability were first released on the Bugtraq mailing list in late November. Microsoft at the time did not consider it a flaw, but is now expected to release a patch.

Israeli teens charged with unleashing 'Goner' virus

■ Four teenagers from the town of Nahariya in Israel are being held by police after admitting they created the "Goner" e-mail-borne computer virus that spread rapidly across the globe two weeks ago. Goner jammed mail servers and was capable of deleting 20 desktop firewalls and antivirus software products. The Israeli high school students face three to five years in jail if convicted.



Covad comes back

■ The U.S. Bankruptcy Court in Delaware last week approved the business reorganization plan of national DSL provider Covad, a move that should allow the company to emerge from Chapter 11 bankruptcy debt-free on Dec. 20. The reorganization allowed Covad, which filed for protection in August, to eliminate \$1.4 billion in bondholder debt for \$270 million and shares representing a 15% stake in the company. Company officials say they will concentrate on adding customers in areas where it already provides service.

Lawmakers delay vote on Tauzin-Dingell bill

■ The U.S. House of Representatives last week delayed a much-anticipated vote on a measure that could let local telecommunication carriers offer high-speed Internet access across regional boundaries without first opening their local markets to rivals. The House will vote on the Internet Freedom and Broadband Deployment Act of 2001 next March, says Ken Johnson, a spokesman for Congressman Billy Tauzin (R-La.). Tauzin co-authored the bill with John Dingell, a Democrat from Michigan. The delay should not be seen as a defeat, Johnson said. "There's going to be a lot of speculation about this, but the bottom line is that members [of Congress] wanted to go home to see their family and friends," he said. "The leadership did not have any other must-do bills on the calendar for Friday."



Congressman Billy Tauzin sees delay on Internet Freedom and Broadband Deployment act.

Palm to buy ThinAirApps for wireless access

■ Looking to boost its appeal among business customers, Palm last week agreed to acquire ThinAirApps, a privately held New York company that develops software for providing wireless access to corporate e-mail and other data. The acquisition, to be paid for in Palm common stock, was valued by the companies at \$19 million and is expected to close by year-end. Palm said it already licenses the smaller company's software, letting employees in the U.S. access e-mail, calendars and other functions in Microsoft's Outlook from a wireless Palm handheld. The two firms have also worked together over the past year to develop server software for accessing data that's stored behind a firewall.

The Good The Bad The Ugly



Nortel has changed the name of its Metro Networks business to Metro and Enterprise Networks to better reflect the company's continued emphasis on corporate nets. "Not only are we committed, but we continue to lead in key segments of the enterprise market, and we continue to invest in the products and technologies to ensure we grow these positions," said CEO Frank Dunn.



The Internet World fall trade show isn't what it used to be. While final attendance figures from last week's show in New York won't be available for another two weeks, show organizers said attendance was expected to be down 25% from last year to 25,000. The number of exhibitors fell from 800 to 500. One sure sign that things were slow: few lines at pay phones, food courts and restrooms.



AOL Time Warner Co-CEO Bob Pittman's keynote address at Internet World got this review from one listener: "I thought it was pretty juvenile. Sure, home shopping on the 'Net is up a bit because people are afraid to go out and shop, but in general . . . the economy is doing badly," said Glenn Zagoren, president of Zagoren-Zozzora, which operates PNLTV.com, a streaming media Web business.

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EU data-privacy laws bog down U.S. firms

Bureaucratic process can delay application projects by months.

■ BY ELLEN MESSMER

Multinational firms that handle employee and customer data in Europe are finding it increasingly hard to quickly roll out new applications because of data-privacy laws mandated by the European Union.

Across Europe, corporations must now pay a visit to the local "data-protection authority" to disclose how marketing, human resources, financial and healthcare data they collect is being warehoused, processed or transported, in or out of the EU. Moreover, these firms have to seek permission from worker-based organizations known as "works councils" to start new IT projects.

Each of the 15 EU countries has adopted, or is in the process of adopting, slightly different provisions to satisfy the EU privacy directive issued in 1998 to promote harmonization of data-privacy regulations. The strictest and perhaps most complex country in this regard might be Germany, where each of the regional states has its own data-protection authority.

"If we install a new business-information system, we have to tell the data-protection authority," says Armgard von Reden, head of IBM's privacy initiative in Europe. The process can add months of delay and uncertainty as IT departments hold off on application and network development until European authorities give the thumbs up, he says.

"We see a need to harmonize the data-protection laws even

further," von Reden says.

Across Europe, businesses acknowledge they must plan further in advance than they used to for IT projects.

"Each country is implementing the EU directive a little differently, and we have to register databases within each country," says Jeff Nichols,

manager of corporate privacy programs at Intel. U.S. operations have to be sure they are abiding by European laws if they receive data on European subjects. The EU won't let data go to places deemed not to have "adequate" data-privacy laws, such as giving European citizens the right to give consent for how data is shared or processed.

Europe views the U.S., with its freewheeling marketing practices, as generally inadequate in data-privacy protection. At one point, it seemed possible the EU might not allow citizen data to be transported to the U.S. However, last summer, the EU and the U.S. reached a compromise with the so-called Safe Harbor agreement.

Safe Harbor went into effect Nov. 1, 2000 and is designed to provide some legal protection to U.S. companies and organizations that, as part of their European operations, gather personal data about people living there, including employees and customers. Companies that sign up for Safe Harbor avoid the prospect that the EU might perfunctorily shut down their network operations from Europe, says Jim Allen, customer-privacy officer at Agilent Technologies.

With Safe Harbor the EU can spot check and if they don't like what they see, complain to the Federal Trade Commission, added Jonathan Winer, attorney at Washington, D.C., firm Alston & Bird. About 100 firms have signed up for Safe Harbor in the last six months.

One Safe Harbor firm, Baxter International, has manufacturing and office divisions in Europe. The EU data-privacy laws last year spurred Baxter to create what it calls its Data Privacy and Security Initiative. Baxter organized about two dozen employees from the IT,



Safe Harbor protects U.S. firms operating in Europe, says attorney Jonathan Winer.

legal and marketing divisions around the world to prepare local approaches to data privacy, in coordination with headquarters. The initiative's goal is to coordinate strategy around the world.

"Everything is cascading from the EU directive," says Heather Humphrey, Baxter's global manager

for privacy and information security. She emphasized that Canada, Australia and Japan appear to be following in the footsteps of Europe on this issue of data privacy, and companies with global interests need to respond to changing conditions.

And woe to those that run afoul of the "data police," which can mete out thousands of dollars in fines and even cut off data flows, if they wish. Two years ago, Microsoft quarreled with Spanish authorities over user data it was collecting for its Windows 98 rollout.

"We ended up arguing over

type sizes and colors, which wasn't in the rules," says Richard Purcell, Microsoft's director of corporate privacy. Spain slapped Microsoft with a fine of several thousand dollars and "we agreed to disagree."

But these days Microsoft, like a growing number of other firms, has joined Safe Harbor to assure Europe of its "adequacy" in data protection, to keep business running smoothly.

"If you haven't signed up for Safe Harbor, you put at risk these business relationships," Purcell says. ■



More online!

Find out about The EU's Directive on Data Protection and link to the International Privacy Library compiled by Alston & Bird.

DocFinder: 7452

WorldCom rolls out low-cost managed hosting

■ BY JENNIFER MEARS

LAUREL, MD. — WorldCom is using the managed hosting technology of newly acquired Digex to provide low-cost, flexible hosting services to small and midsize businesses, as well as to corporations looking for simple platforms for departmental projects.

Managed Express Hosting, introduced last week, is aimed at customers who want a hosting service that goes beyond a shared environment, but doesn't involve the complexity — or cost — of a full-blown managed hosting package. The move is a departure for Digex, acquired by WorldCom in July, which historically has focused on providing high-end, complex hosting packages to large companies such as McGraw Hill and Fannie Mae.

Managed Express Hosting will be offered in 12 configurations including hosting, security, connectivity and infrastructure, as well as Web, database and server administration. Customers can also add higher levels of administration, security, support, monitoring, reporting and data recovery. The preconfigured packages start at \$1,320 for an operating system support package with no application management, to \$2,500 for a Web server, database server and managed application, says Martha Gilbertson, vice president of product management at

A growing opportunity

The Aberdeen Group predicts that in the next four years small and midsize enterprise customers will account for nearly **70%** of the total Web hosting market.

See WorldCom, page 10



■ THIS WEEK'S QUESTION:

What's the new name of JetForm, the longtime electronic forms company?

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Bandwidth with Brains™

Network plays leading role in 'Ring' film

Gigabit Ethernet, Linux and storage appliances provided the infrastructure for animation house.

■ BY PHIL HOCHMUTH

WELLINGTON, NEW ZEALAND — When "The Fellowship of the Ring" opens this week in theaters, moviegoers will see J.R.R. Tolkien's Middle Earth world of hobbits and elves come to life, and probably wonder, "How did they do that?"

While the latest motion-capture and digital-animation techniques were widely employed, network technologies such as Gigabit Ethernet and Linux also played big roles in the film's creation.

To make Tolkien's fantasy world seem real, New Line Cinema used digital special-effects company Weta Digital in New Zealand. While one might expect a multi-million-dollar movie project would involve esoteric and expensive technology, much of Weta's network was built on equipment accessible to most corporations.

"The amount of material we have to move over the network every day is pretty extraordinary," says Jon Labrie, CTO at Weta. Up to 1 terabyte of data is created every day by Weta artists using high-powered workstations and a cluster of Linux servers.

The task of finding the right network technology to do the "Lord of the Rings" began four years ago. Labrie looked hard at using Fibre Channel as a base LAN technol-

ogy — from clients to servers and storage — because it was one of the fastest technologies at the time.

"A couple of things concerned me about Fibre Channel," Labrie says. "First, the cost was a bit prohibitive, and it wasn't going to be a seamless, plug-and-play sort of environment."

Labrie says he made the right decision choosing BigIron and FastIron Ethernet switches from Foundry Networks to connect storage, servers and some clients with Gigabit connections.

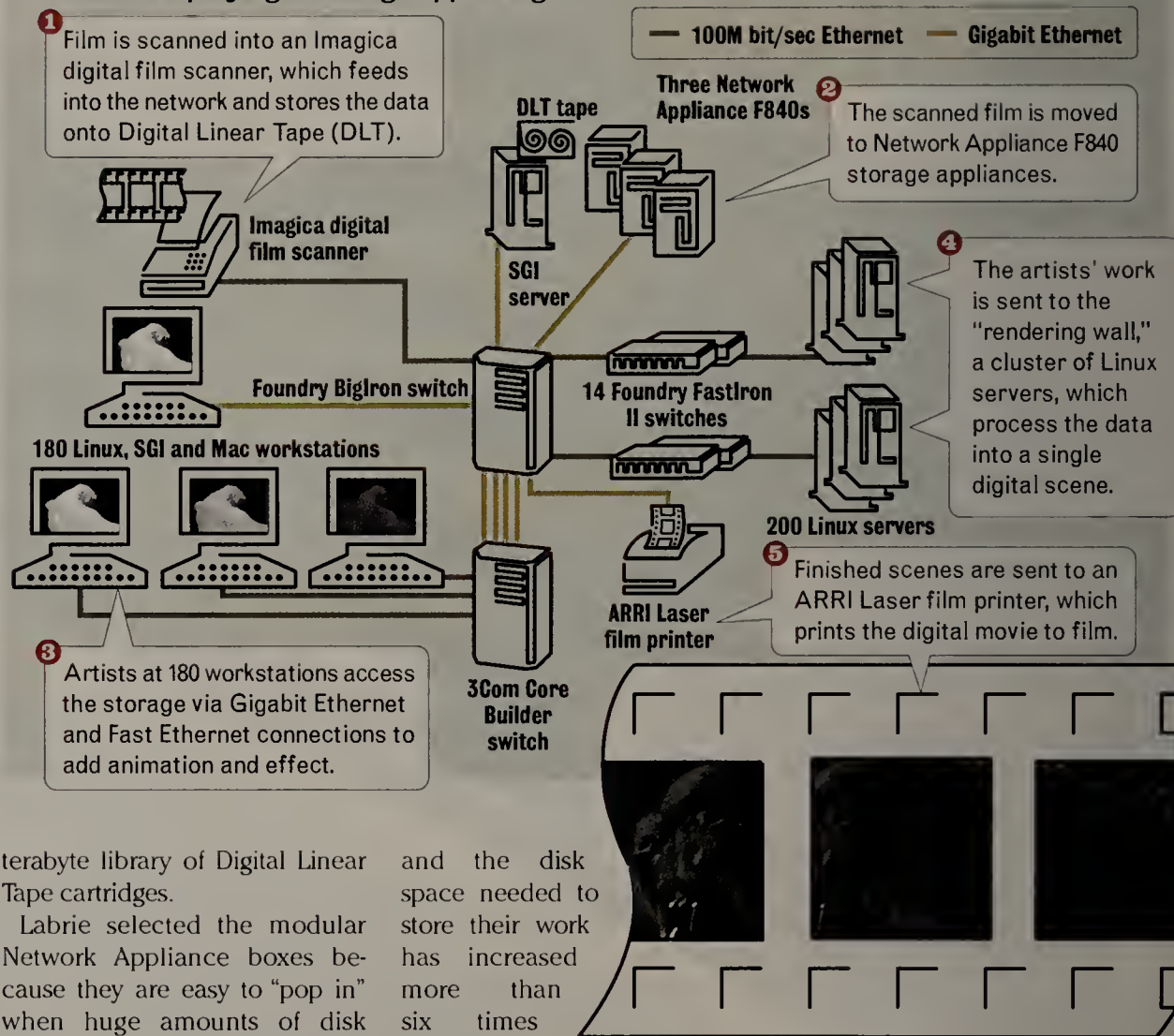
"The decision to go with Gigabit Ethernet was important," he says. "If I'd gone with something more esoteric, like Fibre Channel, I'd have been far more limited in my choices of expanding my machine room infrastructure. ... And I wouldn't have been able to take advantage of the natural and healthy competition between switch vendors."

To store hundreds of hours of digital film, Labrie went with Network Appliance F840 network-attached storage (NAS) boxes, each with 2.7 terabytes of capacity, instead of buying a giant system from EMC or IBM.

This is where "live" data lives, such as digital movie frames that artists need to access quickly for editing. "Offline" data — scans of unedited film and final production scenes — are kept on a 40-

Gigabit Ethernet and Linux ... not magic

Weta Digital created the special effects for the film "The Fellowship of the Ring" with its network playing a strong supporting role.



terabyte library of Digital Linear Tape cartridges.

Labrie selected the modular Network Appliance boxes because they are easy to "pop in" when huge amounts of disk space are needed suddenly. This has certainly been the case at Weta, where the number of artists

and the disk space needed to store their work has increased more than six times during the past four years.

When artists are ready to turn their work into a movie scene, they send jobs to the "rendering wall," a cluster of 400 Linux processors, or 200 dual 1-GHz Pentium servers. The rendering wall combines computer-animated and live-action elements into digital movie files.

Weta had used servers and workstations from SGI — a longtime leader in high-end graphics processing — before migrating to Linux over the last two years because it is less expensive and works just as well, Labrie says.

"The price to put Linux in per processor is extraordinarily low, and the machines are fast as hell," Labrie says. "With Linux you can entertain the idea of putting 400 processors in your machine room. We wouldn't have been able to approach doing that if we had to use [SGI]; it's almost a 10-to-1 difference in price."

WorldCom

continued from page 8

Digex.

The hosting packages can be run on Windows 2000 or Sun Solaris operating systems mounted on Compaq or Sun servers. Digex is using automated provisioning to quickly install the hosting service for customers in as few as four days, says Ron McMurtrie, vice president of WorldCom Global e-Services. Digex will manage the Managed Express services from its U.S.-based data centers just as it manages its more complex offerings.

"What we've done is taken the managed capabilities that we have, where we serve many of the world's Global 1000 companies, and mass-productized that to serve the [small and midsize enterprise] and mid-market," McMurtrie explains.

Large corporations can also benefit from the low-priced services because individual departments could use managed hosting without spending \$6,000 or more per month to get a high-end, entry-level hosting package from Digex, says Dana Tardelli, research analyst with The Aberdeen Group. Analysts say Digex and WorldCom are not alone in

looking to smaller companies and the midmarket to offset a drop in spending by larger companies.

Other Web hosting firms such as IBM and Electronic Data Systems have also rolled out services designed for less complex needs. Service providers such as Interland have long focused on small and midsize companies. But analysts say WorldCom may have an edge because it is combining its global IP network and brand name with the expertise of managed hoster Digex.

"A lot of hosting providers are switching gears all of a sudden," says Melanie Posey, an IDC analyst. "So instead of touting the complexity of the solutions and how high-end they are, now they're saying 'We cover the whole map. If you need a fairly simple thing, we've got that. If you need a really high-end thing we can do that too.'"

Indeed, Managed Express Hosting is one illustration of the multiple service offerings observers expected as telecommunication companies snap up hosting service providers. "You've got these SME customers buying circuits and lines from you already," Posey notes. "So why not put hosting in the mix, too?"

WorldCom: www.worldcom.com; Digex: www.digex.com

While half of the processors at Weta run Linux, moving from a rock-solid platform such as SGI's Unix flavor (Irix) and hardware had some challenges, he says.

"One of the advantages of working with SGI is that if you have problems, you have a single person you can point at and say 'this is broken, fix it,'" Labrie says. "It's a bit more difficult with Linux."

Labrie adds that good support from Red Hat and the open source community helped on many technical issues with Linux.

Overall, Labrie is thankful that commodity technologies — such as Gigabit Ethernet, Linux and NAS appliances — matured at the same time.

"The choice to go with modularity and to stick with off-the-shelf technology was critical in our ability to deliver the film," he says. ■



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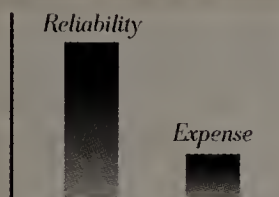


Fig. 1. iSeries Value Proposition.

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Fig. 2. Happy CFO.

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IBM

Bluetooth vendors promise convenience

Growing collection of products, falling prices encourage supporters.

■ BY IDG NEWS SERVICE

SAN FRANCISCO — Attendees at last week's Bluetooth Developers Conference got a long-overdue reality check on the short-range wireless technology.

Speakers emphasized the importance of interoperability and attempted to temper the hype surrounding the technology. At the same time, the conference offered a showcase of PDAs, laptops, printers and cell phones with built-in or add-on Bluetooth radios — and important support from Microsoft — suggesting that the technology may eventually meet industry expectations.

Bluetooth supports wireless data transmission at the relatively low speed of up to 1M bit/sec over distances of up to roughly 30 feet. It is intended primarily for personal-area networks that link devices a user carries, keeps on a desk or houses in a cubicle (see graphic, right). It has been used most-

ly in mobile phones and wireless headsets.

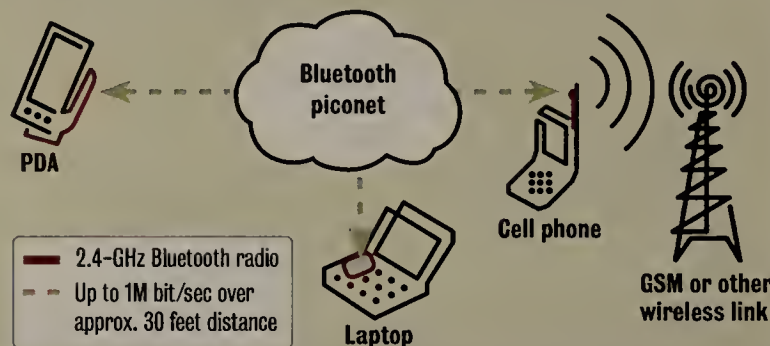
"I believe we are coming out of the trough," said Simon Ellis, chairman of Bluetooth Special Interest Group (SIG) marketing during the event's opening keynote speech. He pointed to a chart that showed a spike in expectations for Bluetooth in 2000 followed by a "trough of disillusionment" in 2001.

The Bluetooth Qualification Program Website (<http://qualweb.bluetooth.org/>) lists 451 Bluetooth products, including many chips and software protocols stacks. But there is a growing collection of adapters and other new products with Bluetooth built in from companies such as 3Com, Compaq and Fujitsu.

Although the Bluetooth SIG oversees the standard, now at Version 1.1, and sets guidelines for interoperability tests, several Bluetooth qualification boards around the world perform the testing. To test new modes of

Life without wires

Devices with Bluetooth radios find each other and create ad hoc "piconets" to share files and functions.



Bluetooth interactions called profiles, some of these qualification boards go beyond the baseline tests, acknowledged Gerhard Heider, a general manager at Philips Semiconductors. But he defended the process and said Bluetooth is well prepared to test for basic interoperability.

"There are a lot of profiles that aren't even finished yet, so of course they aren't interopera-

ble yet," he said. "In a young technology, you will not always achieve 100% interoperability from Day One. It's everyone's concern."

Gartner analyst Ken Dulaney was not so sanguine.

"The broad interoperability that people really want is not delivered today," he says. The technology will become viable about two years from now, Dulaney says.

Sun

continued from page 1

Sun's suite will be among the first storage management offerings to support the Distributed Management Task Force's Common Information Model, which is designed to promote management of multivendor networks. Sun will also offer a software developer's kit to help third parties tie in their products.

Sun is a significant player in the storage hardware market, accounting for a quarter of the terabytes shipped last year, according to IDC, and ranking second among SAN vendors behind Compaq, according to Gartner.

Sun's been much less of a factor on the software side. However, like EMC and others in the storage market, it has started to pursue the higher margin storage software business, which The Yankee Group says will explode from a \$5.7 billion market this year into a \$14 billion one by 2005. The company sells a full line of backup, replication, file system and resource management tools, resells Veritas software and has made several acquisitions during the past year in this area.

Among the components in the new suite is Sun's Quick File System technology, which can

be used to create large file systems from multiple disks and subsystems, and enables simultaneous reads and writes to multiple devices, thus eliminating system bottlenecks. Also, data grooming tools will be included to help IT managers with decisions on the appropriate storage media for data based on age or other characteristics.

Other components will include existing products such as the StorEdge Network Data Replicator, a business continuity package; StorEdge Instant Image, software for taking snapshots of data in real time; and HighGround Surveyor

Storage Resource Management software, for storage assessment and proactive management. Clustering and policy-management software will also be included.

Among Sun's differentiators, observers say, is that its suite will let customers manage not only storage resources from Sun and others, but also storage software, volumes and more. The software will be priced per terabyte managed, likely costing customers in the range of \$5,000 to \$25,000 for each suite within the umbrella suite.

Soaring storage

The cost of storage and its administration will grow from 5% of current IS system budgets to

17%

in 2003, according to Forrester Research.

"Sun will be a serious contender in the storage management market against EMC, IBM and Compaq," says Steve Duplessie, an analyst with the Enterprise Storage Group. "They have a complete vision that gives a customer everything and more than they need. IT managers know that managing storage is the primary problem — being able to control, assess and take action based on rules is going to matter."

"There are a lot of management products that tackle one aspect of the problem," says Jamie Gruener, an analyst with The Yankee Group. "Finding the right set of storage-management tools to meet enterprise requirements is difficult though, since the market has been fragmented by management point products and storage system platform-specific management tools."

Observers say an integrated multivendor system could help customers contain runaway storage-management costs. Gartner says it costs five to seven times as much to manage storage resources as it does for customers to buy the resources themselves.

"If a single package can do everything 'correctly' that a specific vendor package can do, I'm all for it," says Robert Banniza, a senior system administrator for Ascension Health in Evansville, Ind., who uses separate Compaq, IBM and Sun tools to manage the vendors' respective storage products.

Sun: www.sun.com

Cahners In-Stat estimates there are about 2,500 companies supporting the Bluetooth standard. The market research firm predicts there will be hundreds of millions of Bluetooth-equipped devices by 2005.

Viability hinges on ever-lower costs for Bluetooth components, and widespread adoption by hardware and software vendors.

Last week, Motorola Semiconductor Products unveiled a chip package that will sell for about \$6 — about half as much as other packages — in million-unit orders. The package includes longer range, support for more ad hoc networks at once, and what Motorola said will be the first implementation of adaptive frequency hopping, a technique for minimizing interference and boosting throughput of Bluetooth and 802.11b nets that run close to each other. Both wireless standards use the 2.4-GHz frequency band.

There was a high-profile endorsement of Bluetooth last week at the conference, when Microsoft reaffirmed its plan to include a Bluetooth protocol stack in Windows XP during the latter half of next year. However, Andy Glass, Microsoft's Bluetooth program manager, warned developers that the stack would differ from those in use today by supporting only a subset of Bluetooth profiles and by supporting IP 6.0 to communicate among devices.

This story was compiled by Stephen Lawson, a correspondent with the IDG News Service's San Francisco bureau; Joris Evers, a correspondent with the news service's Amsterdam bureau; and John Cox, a senior editor at Network World.

Corrections

The story "Cable net's demise raises new worries" (Dec. 10, page 12) should have reported that AT&T Broadband withdrew its \$307 million bid for Excite@Home after Excite@Home cut off Internet access to AT&T Broadband's customers.

Nokia, Check Point get cozier on VPN gear

Nokia to go with one line of VPN appliances based on Check Point software.

■ BY TIM GREENE

Nokia plans to blend its two firewall-VPN hardware families into one that lets customers group devices at critical sites so if one box fails the others will pick up the load without dropping users' sessions.

Nokia is trying to offer customers a uniform product family by drawing features from its two current firewall-VPN product lines, the IP and CryptoCluster series. When the consolidation is complete by the end of next year, all the boxes will have the IP series name and include CryptoCluster back-up technology. In addition, Check Point Software VPN-1/Firewall-1 software that runs now on just the IP series will be standard across the whole line.

This melding of product families was part of a larger announcement by Nokia and

Check Point that includes commitments to expand their collaboration beyond firewall-VPN appliances. The companies say they are jointly developing firewall and VPN software for Nokia wireless devices such as phones and PDAs.

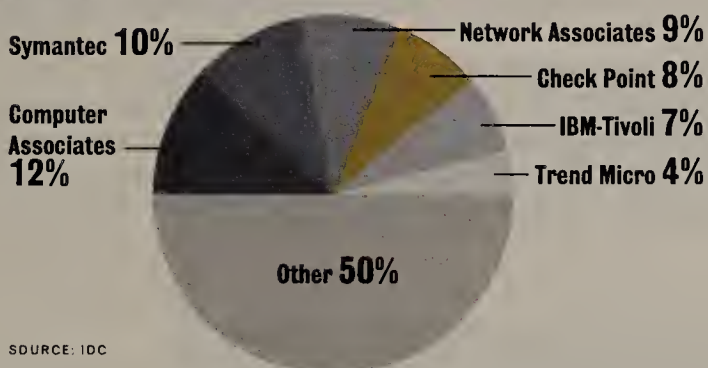
"We're going to share our roadmaps, we're going to work on our technologies, we're going to tighten them together," says Jerry Ungerman, Check Point's president. The companies' engineers are already working in each other's labs, he says.

Observers say this broadened relationship should help dispel rumors that the Nokia-Check Point alliance was falling apart. By wiping out the freestanding CryptoCluster family, Nokia will rely on Check Point for all its firewall and VPN software, says Mark Bouchard, an analyst with Meta Group. And Nokia product sales are key to Check Point. "They

Checking out Check Point

Last year Check Point ranked No. 4 among security vendors selling firewall and VPN software.

Worldwide security software leaders, 2000



SOURCE: IDC

are the largest platform on which we deploy today from a single partner," Ungerman says.

Together, the companies have created extremely popular products. Market analysts consistently rank Nokia's IP series of appliances first or second, running neck and neck with Cisco. This new line will combine Check

Point's respected security software with Nokia's mature clustering technology, which was the first to preserve VPN sessions when a clustered box failed. Other vendors, such as NetScreen Technologies and SonicWall, make firewall-VPN appliances but rely on their own technologies.

Even so, the new agreement is

still just words. "No equity is changing hands, so [this deal] could be perceived as a bunch of marketing hype," Bouchard says.

But Nokia says that by spring it will ship the first new hardware platform for the new IP line of security gear, enabling load balancing, failover and high-speed encryption. Current customers of Nokia's IP series will be able to upgrade to clustering software on their current hardware, but it will lack the extra processing power that the new hardware brings.

Nokia's failover capability restores sessions within 500 msec if one device in a cluster fails. Vendors including Cisco, Enterasys Networks and NetScreen have incorporated load balancing in their VPN gear with varying degrees of ability to maintain sessions.

Nokia: www.nokia.com; Check Point: www.checkpoint.com

Excel

continued from page 1

These features seemingly provide a measure of data security to conceal specified data from prying eyes.

In reality, that data can be exposed by any end user who can execute a simple copy-and-paste procedure. It takes fewer steps to reverse the security than it does to set it up.

When Excel data is copied using the "copy all" command and pasted into a new spreadsheet, it exposes the hidden and password-protected cells, which may contain data such as employee salaries, return-on-investment or expense report calculations, or request-for-proposal formulas. Excel users must execute an

"unhide" command in Excel before they see the previously protected data in the spreadsheet copy, but in non-Microsoft spreadsheets the hidden cells are automatically revealed.

Unless access to the document is locked down, Excel cannot protect any information, although the program gives the illusion that it can, critics say.

The result for large corporations is that millions of Excel documents shared between co-workers and business partners could become a security breach for confidential data.

"I thought there was some security. I had no idea," says Jeff Ostroff, the owner of a Web site that offers car-buying tips and free

spreadsheets designed to calculate deals. Ostroff's site states that password protection is used on Excel so viewers cannot manipulate or hijack his formulas. "I'm surprised it is that easy to expose the data," he adds.

Ostroff believes that 99% of users don't



“This is like putting a password on a document while also supplying a Post-It Note revealing the password.”

Rick Sturm

President, Enterprise Management Associates

know the secret. "We get requests for the passwords all the time from people who want to change the formulas."

Some say the issue creates a major security concern.

"The method of password-protecting data in Excel is something companies around the world rely on," says Rick Sturm, president of Enterprise Management Associates (EMA), a consulting and research firm that encountered the security hole when it was creating spreadsheets to share with clients. "This is like putting a password on a document while also supplying a Post-It Note revealing the password. It's as potentially damaging as some of these recent viruses that have spread around the world."

A simple example, according to EMA researchers, is that a user could copy and paste an expense report to another spreadsheet as a way to expose a password-protected mileage calculation formula. The mileage reimbursement figure could be increased from .31 to .81. The user would then save the document with the same name as the original and send it back, even password-protecting the new formula.

Microsoft officials say the ability to password-protect and hide data is not a "security" feature but a "display" feature. That means that while creators of spreadsheets can hide data from display, or protect it from manipulation on the original document, they cannot safeguard or secure it from view or manipulation if another user copies and pastes the data.

Experts say perception is the critical factor.

"The key question is what does the typical Excel user expect," says Richard Smith, an independent Internet Security and Privacy consultant and former CTO of the Privacy Foundation.

"The user is led to believe you get some level of security," Smith says. "People's expectations of the feature are different from Microsoft's. It's a classic overselling of a feature and when issues are

revealed Microsoft backtracks. How are customers supposed to read Microsoft's mind?"

Many have not, but Microsoft officials say Excel is no way to safeguard data.

"If you give someone read access to an unencrypted file, there is really no way to protect the data," says Jeanne Sheldon, director of engineering services for Microsoft Office. "If you are trying to protect data this is not the way to do it."

Microsoft suggests a relational database for that level of security. However, Sheldon says Microsoft will clarify the intended use and limitations of hidden and password features in the next version of Excel, which likely won't ship until 2003.

"There is little awareness in the public on this because Microsoft appears to uphold the password protection [in the original document], creating an illusion of security when in fact there is none," says Ned Endler, EMA's IT manager. He says it is clear that people are making security assumptions based on the words "password" and "hidden" and the online help menus within Excel that say data is "protected" and can't be "unhidden."

Endler cites the U.S. Department of Agriculture's Web site, which includes a set of guidelines for producing secure documents that includes the method for securing Excel documents that is foiled by the technique.

"It's a disservice because of the ambiguity for the average user," Endler says. ■



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IETF wrapping up int'l domain work

■ BY CAROLYN DUFFY MARSAN

SALT LAKE CITY — The Internet's main standards-setting body is putting the final touches on a set of specifications that will support foreign-language domain names in addition to today's English language derivatives.

Called Internationalized Domain Name (IDN), the new specifications are eagerly awaited by domain name registries and registrars, which anticipate a huge market opportunity in Europe and Asia. Once these names are operational, multinational corporations can create native-language

Web sites for marketing their products in each country where it conducts business.

The Internet Engineering Task Force (IETF) has worked on the controversial IDN specifications for two years, and completing them is one of the organization's top priorities.

The IETF's IDN Working Group held a meeting last week to finish its scheme for converting foreign-language characters to U.S. ASCII equivalents for transmission over the Internet's DNS. The working group is ready to send three documents outlining the technical details of its approach to the full

IETF and the IETF leadership for final approval. A proposed standard could be released as early as March, IETF participants say.

"Our basic architecture is done. We just have to forward the documents for final approval," says Marc Blanchet, co-chair of the working group and an IT consultant with Canadian firm Viagenie. "We've really been under a great deal of scrutiny and review [by the IETF leadership], so my guess is that there will be no problems."

Harald Alvestrand, chairman of the IETF and a Cisco engineer, admits that the IETF's IDN approach won't solve the browsing problems of all Internet users around the world, but he says it is technically sound.

"It's not what people started out looking for, which is a painless solution that works for everyone," Alvestrand says. "This solution will irritate a lot of people a lot of the time . . . [because] it won't be transparent. People will have to have special software or they'll see cryptic strings in their browsers. But I don't think it will do any active harm to the Internet."

Once it is released as a proposed standard, the IDN technology is expected to have an immediate impact on the domain name industry because it can be used for foreign-language top-level domains and domain names.

The Internet Corporation for Assigned Names and Numbers, which oversees the domain name system, has held off most registries and registrars from offering foreign-language domain names until the IETF develops a standardized approach.

VeriSign Global Registry Services, which operates the .com, .net and .org domains, has offered foreign-language domain names for a year using software plug-ins and keywords to resolve the names. But VeriSign has promised to migrate 1 million foreign-language names it has sold to the IETF's IDN standard when it is released.

"There are 20-odd registries that are operational in VeriSign's IDN test bed. They have the transition mechanisms in place, so they can move [to the IETF's IDN standard] pretty quickly," says Rick Wesson, an IETF participant who develops software for domain name registries and registrars

Inside Internationalized Domain Name

The IETF's IDN set of specifications includes three communications protocols:

- **IDNA:** creates a presentation layer on top of the Internet's DNS to input and display domain names to end users in their native languages.
- **Nameprep:** prepares native-language domain names for resolution by mapping characters onto Unicode.
- **AMC-ACE-Z:** transforms a Unicode string into ASCII for transmission across the Internet and then converts it back again.

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The Internet's governing body addresses security and legal issues by:

- Cautiously moving forward with plans to develop a standard approach for network intermediaries, such as proxy servers, to alter Web content, despite worries that such a technique could be used to make unauthorized changes. **DocFinder: 7467**
- Airing concerns that IETF participants could be subject to criminal or civil lawsuits under the Digital Millennium Copyright Act. **DocFinder: 7468**

Cisco ups security for remote offices

■ BY PHIL HOCHMUTH

SAN JOSE — Cisco last week released new software and hardware aimed at shoring up security on the user end of a remote access VPN connection.

Cisco's VPN Client software and VPN 3002 Hardware Client could be used to add personal firewall capabilities to remote office users' or teleworkers' PCs, making it harder for hackers to gain access to a network by breaking into an insecure remote client. The software also makes it possible to access a VPN from inside a firewall-protected network.

Version 3.5 of Cisco's VPN software includes personal firewall technology from Zone Labs. The client software can be configured with Cisco VPN equipment at a central site so that only clients with the firewall software activated can access the network. Firewall policies and other VPN settings can be configured at a network headquarters, and sent to a client machine when the PC logs on.

The client now supports VPN logon access with smart cards — credit card-sized appliances that generate one-time-use passwords. The client also supports Windows NT password expiration — a commonly used NT server security function, which requires users to enter a new password after a set number of days so old passwords can't be misused.

Another feature adds support for IP Security/TCP, which makes it possible to establish a VPN tunnel to a corporate network while behind a firewall or router using network address translation (NAT). NAT hides the IP address of the machines trying to establish tunnels and can derail the IPSec VPN authentication process. The new feature lets a laptop connect to a VPN through a corporate firewall by wrapping up VPN traffic inside TCP packets that can be easily unwrapped to reveal the true source of IP addresses, avoiding the NAT problem.

Version 3.5 of Cisco's 3002 Hardware Client now supports individual user sign-on for VPN access. This could be used in a remote office, where a 3002 Hardware Client is used to give VPN access to multiple PCs. The new software would require all clients to authenticate to the local hardware client, which then proxies authentication to a centrally located VPN gateway.

The new Cisco products will compete with offerings from Avaya, Enterasys Networks, Nortel and others.

Cisco's new VPN hardware and software clients are available now as a free upgrade for existing customers.

Cisco: www.cisco.com

■ Read about Check Point's latest security appliance. **PAGE 15.**

with Alice's Registry.

What needs to happen next is for application software developers to incorporate the IDN specifications in Web browsers, e-mail clients and network administration software. Microsoft has said it will support the IETF's IDN standard in its Internet Explorer.

Despite its promise, the IETF's IDN technology will leave some Internet users unsatisfied. It doesn't help Chinese Internet users cope with the translation between their traditional and simplified character sets. Nor does it address Chinese, Korean and Japanese characters that look the same but have different meanings.

These Asian language problems stem from Unicode, a computer industry standard for representing language characters that was developed with the International Organization for Standardization (ISO). The IETF's IDN technology uses Unicode.

"The Chinese have a real problem, but because the root of their problem is ISO and Unicode actions taken 10 years ago, the IETF can't fix their problem without breaking Unicode," says Paul Hoffman, one of the authors of the IETF's IDN approach and a *Network World* columnist.

At the same time the IETF wraps up work on IDN, it is considering

launching an effort to create a new search service on top of the Internet's DNS that could fix the Asian language problems and other domain name issues.

The Internet Resource Name Search Service (IRNSS) would provide context and location matching to help end users find the right Web sites. It also would let more than one company own a particular domain name, such as Delta.com, by asking users, for example, if they are interested in airline tickets or faucets.

"IRNSS solves the IDN problems, solves the whole problem with domain names and makes trademark lawyers happy," says Michael Mealling, a proponent of IRNSS and VeriSign engineer. Mealling says the IRNSS development effort would take about a year.

Regardless of where they stand on the IRNSS and IDN approaches, most IETF participants anticipate a huge pent-up demand for foreign-language domain names. Alvestrand says his son can now have an e-mail address that reflects the true spelling of his first name.

"I can't wait to register my company's domain name with the accent over the e," Blanchet says. "That's been a dream of mine for 10 years." ■

Infrastructure

■ TCP/IP, LAN/WAN SWITCHES
 ■ ROUTERS ■ HUBS
 ■ ACCESS DEVICES ■ CLIENTS
 ■ SERVERS ■ OPERATING SYSTEMS
 ■ VPNS ■ NETWORKED STORAGE

Start Takes

■ **Allied Telesyn** recently released media converters aimed at stretching the reach of copper-based Gigabit Ethernet. The two conversion devices could be used to connect a copper-based Gigabit Ethernet switch to a fiber backbone in a large campus by extending the 300-meter limit of copper Gigabit ports up to 10,000 meters. The two modem-sized devices come with a single 1000Base-T port, and a 1000Base-SX or LX port for converting a single copper Gigabit port into a single- or multimode fiber connection. Companies that have fixed-port 1000 Base-T switches deployed and want to add long-reach connections to the boxes could save money by using media converters instead of buying new switches with fiber Gigabit uplinks, the company says. The media converters are powered by an external power supply or can fit into Allied Telesyn's 12-slot, rack-mountable media converter chassis, which can provide power to multiple media converters from a single source. The **AT-MC1004 1000Base-T/1000 Base-SX** converter is available for \$700, while the **AT-MC1005/1**, which converts copper Gigabit to multimode fiber Gigabit, costs \$1,500. Both products are available now. www.alliedtelesyn.com

■ **Xythes** has updated its Internet file system, called **WebFile Server**, which aims to help users access files over the Internet and IP networks. WebFile Server 3.1 lets users search for file information based on create or modify date, owner or contents of a file. It also lets users grant other users guest permissions to the file server and supports multiple versions of the same file. The WebFile Server works on Windows NT or 2000, Unix, Linux and mainframe environments, and can gather information from direct-attached, network-attached and Fibre Channel-based storage. Xythes WebFile Server costs \$5,000 per 100 users and is available now. www.xythes.com

Start-ups tackle storage mgmt.

■ BY DENI CONNOR

Network professionals could find managing their storage devices and applications easier with software from TeraCloud and InterSAN, two start-ups that rolled out products last week that monitor and manage statistics gathered from heterogeneous storage resources.

TeraCloud's SpaceNet lets customers automate policies, tasks and events for direct-attached, network-attached or storage-area network (SAN) devices. Today most of these tasks, such as backing up data, must be entered and triggered manually. InterSAN's Pathline approaches management of storage differently — the software provisions, manages and monitors SANs by the applications running on them rather than on the storage devices.

TeraCloud's SpaceNet storage resource management software creates a physical and logical view of the storage resources on the network and monitors storage equipment, letting the customers make decisions on capacity, performance, configuration, migration, policies and disk quotas, and set alerts for when thresholds are exceeded. The software runs on Windows NT, 2000, Linux, NetWare, Unix and OS/390 servers, and is managed from a browser-based interface.

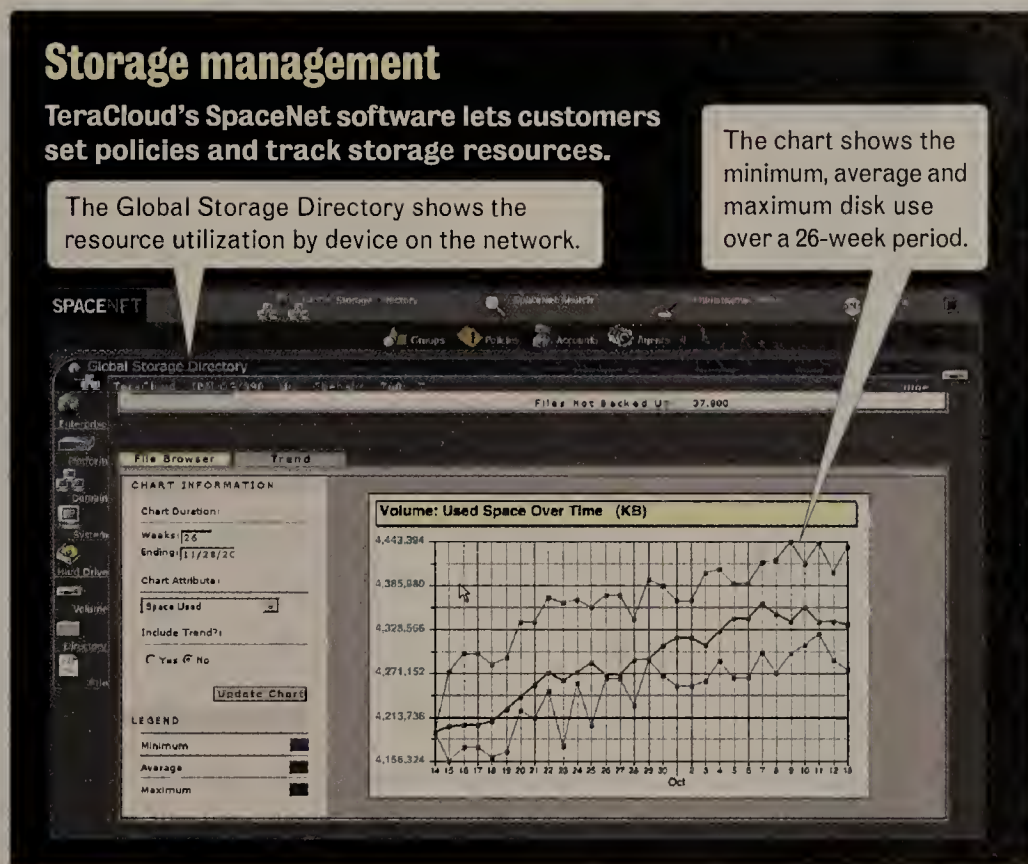
Marvin Lloyd, director of technical sup-

Storage management

TeraCloud's SpaceNet software lets customers set policies and track storage resources.

The Global Storage Directory shows the resource utilization by device on the network.

The chart shows the minimum, average and maximum disk use over a 26-week period.



port for electronic payment processor TSYS in Columbus, Ga., has used TeraCloud's storage resource management software products on his IBM zSeries (S/390) mainframe.

"We use [TeraCloud's product] for storage reporting, predicting storage require-

ments, and determining where growth and file cleanup has occurred," Lloyd says. "I need to make my [staff] as productive as possible. This product helped me do that." He says he hopes to extend its use to the NT servers on his network.

The market for Enterprise storage resource management software is expected to grow from \$1 billion in 2000 to \$3.8 billion in 2005, according to Dataquest. SRM is a subset of a technology Gartner calls storage-area management, which not only monitors and manages storage devices and servers, but manages the relationship between applications and their storage.

InterSAN's Pathline is an example of storage-area management software, says Robert Passmore, an analyst with the Gartner Group says. Pathline lets users automate storage provisioning, measure service-level agreements, and create and monitor policies. The software also provides automatic discovery and continuous health monitoring for heterogeneous storage networking components. Pathline runs on a Solaris server.

Chris Eidler, CTO at service provider StorageWay in Fremont, Calif., uses InterSAN's Pathline to help him automate the provisioning of 130 terabytes of storage for his customers.

"Before we had Pathline, we developed our own tools and processes to do it our-

Check Point bolsters new firewall appliance

S-box will later include VPN support for remote branches.

■ BY TIM GREENE

REDWOOD CITY, CALIF. — A subsidiary of Check Point Software is shipping a security appliance to protect remote-office and telecommuter LANs, and to make it simpler for companies to set up and manage Check Point VPNs.

SofaWare Technologies' S-box is designed to be simple enough for technically unskilled end users to install, yet still be sophisticated enough to satisfy corporate security needs, says Gil Shwed, CEO of Check Point.

S-box could be used as an alternative to Check Point's Firewall-1/VPN-1 software

that would run on a PC in a remote office or on a telecommuter's laptop. Instead of protecting just one machine, though, S-box could protect multiple devices at the same site, which is more typical of a remote office or even some telecommuters' home offices. The box contains a four-port 10/100 Ethernet switch to protect all devices in a small office and would connect to the Internet in conjunction with a cable or DSL modem.

Rather than dispatch your technicians to each site to install these devices, you can have the technicians preconfigure them and ship them to end users to install. They

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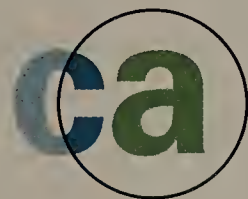
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It's the time of year when we get together with those we know, love — or just work with — to share the joy of the holiday season. If your holiday get-togethers include sessions with other network managers, help desk professionals or IT and IS personnel, I'm sure the chat will eventually turn to "stupid user stories" — tales of the wondrous things that users say and do showing how clueless they are about technology.

You know the sort of stories I mean — they have punch lines like "...so he stuck the floppy in the fax machine!" We all chuckle, take another sip of some fermented beverage and attempt to top that

story with one showing an even more egregious misunderstanding of tech stuff.

But did you ever stop to think that it really isn't the marketing people's responsibility to know the difference between SCSI and IDE or that salespeople don't actually have to be able to debug a Windows error message?

It's not a big stretch to imagine the telecom folks — at their holiday bash — guffawing over how you managed to screw up the phone system. I don't even want to think about what the auto mechanics have to say about me!

Every system, technology, discipline or area of activity has users and maintainers. Sometimes we're the users, sometimes we're the maintainers, but it's a sure bet that the users (in general) won't have the same knowledge and expertise as the maintainers. Every single one of us is a user of some system, technology or discipline that we don't fully comprehend — and needn't fully comprehend. I know

when and how to put gas in my car. My mechanic gives me reminders about oil changes and other maintenance requirements. Anything beyond that, I call the mechanic and describe what won't work. I try not to attempt to demonstrate knowledge beyond my ability by diagnosing the problem, but occasionally I'll try. I'm sure those stories make the rounds at the next ASE meeting (ASE is the certification program for auto mechanics — just like our Microsoft Certified Systems Engineer).

So this year, as you gather at the local watering hole for a glass of holiday cheer, if you're tempted to tell the one about the user and the "cup holder" think twice — remember some of the less-than-knowledgeable comments or activities you've perpetrated this year, and remember the words of the old Christmas carol: "Peace on Earth, good will toward men." Make the world a kinder, gentler place — starting with your own organization.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the Week

Last month's column on the "Grand Masters of Hype" (www.nwfusion.com, DocFinder: 7427) brought e-mail recalling something **Bill Gates** wrote in 1988 — when he announced that a particular operating system was "destined to be the most important operating system, and possibly program, of all time." He was speaking of OS/2, of course.

Check Point

continued from page 15

would just plug them into the broadband modem and to local devices such as PCs, servers and printers.

The device can receive software updates from a central site, and end users can reconfigure the device via a Web interface. S-box could also be used to support a firewall service or by individuals who want to protect their

firewall, but within months it will include VPN software and support other security, such as URL filtering and e-mail antivirus protection, Shwed says. The box initially will be managed via SofaWare's management platform called Safe@Home Security, but later will be brought under Check Point's Site-Manager-1 enterprise management software.

Integrating such an appliance into Check Point's products is a departure for the company. Until now it has licensed its software to other vendors, notably Nokia, that install it on similar appliances. In fact, analysts generally credit Nokia's boxes with Check Point software as being among the top sellers of such VPN appliances.

Similar to a Nokia IP51 firewall-only appliance, which costs \$900, S-box without VPN software would cost less than \$300, Shwed says. While SofaWare firewall and VPN software is based on Firewall-1/VPN-1 technology, it is a lighter version of both. The price for S-box with VPN software has not been set. Shwed says that with VPN support, S-box would also compete with other VPN/firewall appliances such as NetScreen Technologies' 5XP, which costs about \$500.

Kolodgy says he thinks S-box will not threaten Nokia's product line, which was designed with enterprise use and management in mind.

Check Point: www.checkpoint.com



SofaWare S-box, a security appliance made by a subsidiary of Check Point, can be used in Check Point VPNs.

home Internet connections.

This new box may be the result of necessity, says Charles Kolodgy, an analyst with IDC. SofaWare, like Check Point itself, was set up to sell software, not hardware, with the idea that other vendors would imbed the software in their products.

SofaWare was hoping cable and DSL-modem vendors would use the technology but wound up putting its software in hardware itself. "I think it more comes down to the fact that they couldn't find someone else to do it," Kolodgy says.

Service providers might be interested in using the boxes to support firewall services for consumers, he says.

Initially, S-box contains only a

Hole found in logon program on Sun, IBM servers

■ BY JORIS EVERS

Attackers could get full access to servers running Unix versions supplied by Sun and IBM because of a security hole in the logon program of the operating system, experts warned last week.

A buffer-overflow flaw exists in the Unix logon program, which authenticates access to the system by user names and passwords. Because the logon program is also used by two remotely accessible programs, telnet and rlogin (remote login), the flaw can be exploited by those who do not have direct access to the system, experts at Internet Security Systems (ISS) and CERT

said in separate statements.

Systems are only vulnerable if telnet, rlogin and other terminal connection services that use login for authentication are enabled, which they usually are by default, according to ISS. Attackers can exploit the vulnerability to gain superuser privileges or root access to the server, the highest privilege level on Unix systems, letting the attacker execute arbitrary commands.

A software tool, or exploit, to compromise systems running the affected operating systems has been made public, ISS says.

ISS and CERT advise system administrators to install Secure Shell, a secure alternative to telnet and rlogin, and disable default ter-

minal connection services until the software can be patched. Sun and IBM have software fixes available, according to CERT.

Sun's Solaris 8 and earlier versions, and IBM's AIX Versions 4.3 and 5.1, are affected. Other systems derived from the same code base, Unix System V, could also be vulnerable, CERT said. Hewlett-Packard told CERT that its HP-UX is not exploitable.

The ISS security advisory can be viewed at www.nwfusion.com, DocFinder: 7450. The CERT/CC advisory can be found at www.nwfusion.com, DocFinder: 7451.

Evers is a correspondent with IDG News Service's Amsterdam bureau.

Start-ups

continued from page 15

selves — we had to learn all the point products from vendors such as LSI Logic, Hitachi and Brocade," Eidler says. "With Pathline, we were able to consolidate those [devices] to the applications on our network. From a corporate standpoint, I can take the people dedicated to [an application] and put them on an initiative that will generate additional revenue for us."

A large number of vendors compete with both companies.

Among SRM tools are Sun's Highground, Computer Associates' BrightStor SRM, Precise's StorageCentral and EMC's ControlCenter. A few of the storage-area management tools available are Veritas' SANPoint Control, BMC Software's Application-Centric Storage Management and Prisa's VisualSAN Configuration Manager.

SpaceNet is available immediately starting at \$40,000 per terabyte. Pathline will be available this month; pricing is based on the number of terabytes being managed. It starts at \$40,000.

TeraCloud: www.tcloud.com;
InterSAN: www.intersan.com



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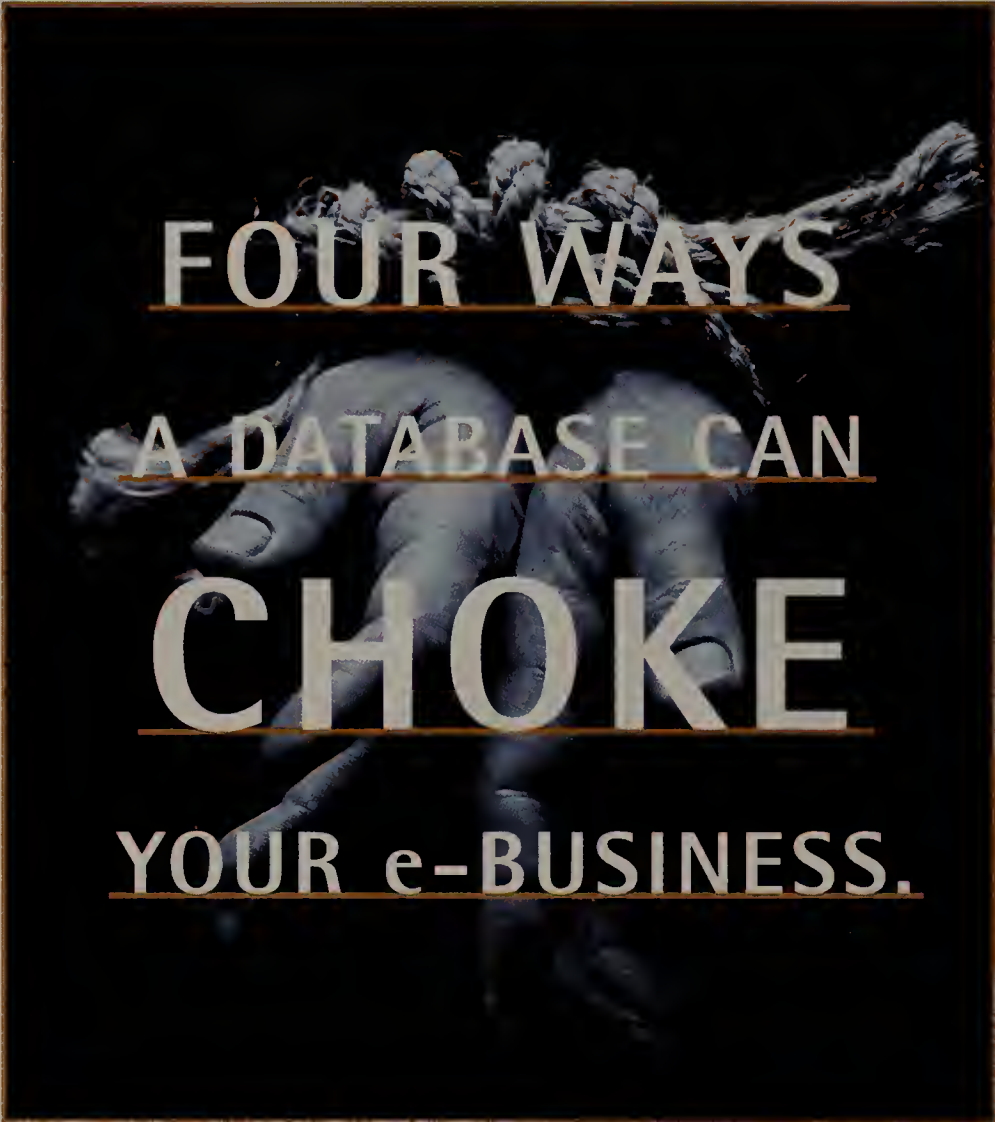
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Short Takes

■ **Peregrine** last week launched its **Integration Adapter Factory**, a line of software adapters based on Java 2 Platform Enterprise Edition Connector Architecture that aims to help users and vendors integrate disparate applications. JCA offers a standard way for J2EE application servers, including IBM's WebSphere and BEA Systems' WebLogic, to plug into back-end applications such as enterprise resource planning and customer relationship management systems. Peregrine will include adapters, which will roll out in January, for databases and mainframes, and software from Oracle, PeopleSoft, SAP and Siebel Systems. As part of the announcement, Peregrine struck deals with BEA and IBM to resell its adapters. Pricing for the adapters was not announced. www.peregrine.com

■ In an effort to enhance its offerings for the corporate market, **Yahoo** last week added a strategy services department to its **Yahoo Enterprise Solutions** division, offering companies guidance on how to reach customers through Web-based services. The department will also be in charge of developing an enterprise consulting practice to help companies evaluate customer communication needs and translate them into products and services, Yahoo said. www.yahoo.com

■ **I2 Technologies**, the Dallas provider of supply-chain management software, is moving a significant part of its product development from the U.S. to Bangalore, India, as part of a cost-cutting program because of the U.S. recession. "At present the Indian development center accounts for 17% of i2's product development," says Pallab Chatterjee, executive vice president of worldwide development. "The goal is to increase this share to 50%." The remaining 50% of product development will continue in the U.S. The staff at i2's India development center has grown from about 50 employees in 1996 to more than 1,000. www.i2.com

Domain mgmt. package on tap

VeriSign offers suite of services for managing brand names.

■ BY CAROLYN DUFFY MARSAN

VeriSign is offering its first comprehensive suite of services for multinational organizations that want to outsource the management of their brand names on the Web. But industry analysts say these organizations may not yet be ready to buy such high-end services for monitoring and protecting their domain names.

VeriSign's Digital Brand Management Services include domain name management, monitoring of brand usage online and internationalized domain name sales. To provide these services, VeriSign bought two companies: NameEngine, a New York domain name registrar focused on multinational corporations; and 1GlobalPlace, a Los Angeles consulting shop that helps companies establish online presence overseas.

VeriSign also inked partnerships with five other companies to create and resell the new services. VeriSign will resell Web spidering services from Cyveillance and Cobian, and keyword registrations from RealNames. And VeriSign lined up two advertising agencies — Young and Rubicam, and SF Interactive — to be the first participants in its new professionals

Name games

Strange but true domain name facts:

- Philip Morris owns Marlboro, the most popular cigarette brand in the U.S., but it doesn't own marlboro.com, marlboro.org or marlboro.net.
- McDonald's owns mcdonalds.com and mcdonalds.org, but Mark McDonald of Simi Valley, Calif., owns mcdonalds.net.
- Cisco owns cisco.com, but the Construction Industry Service Organization owns cisco.org.

services partnership program.

VeriSign officials say they hope to parlay their lead in domain name registration for large corporations into the sale of additional services that will range in price from \$5,000 to \$100,000 per year.

"Most large companies have between 200 and 500 domain names, and they are spending over \$100,000 a year to manage them," says Maigread Eichten, vice president of VeriSign's Digital Brand Management Services.

Eichten says that in the late 1990s, large companies had to register and renew

domain names for their brands only in the dot-com domain. The situation has become more complex with the introduction of new top-level domains such as .biz and .info, along with a diverse set of rules regarding country-code top-level domains.

"The complexity has become overwhelming," Eichten says. "Eighty-two percent of enterprises are do-it-yourselfers ... But they're looking to off-load this job. They're looking for a managed service."

VeriSign's target market includes the 3,700-plus companies that already use the company's payment, authentication and naming services.

However, VeriSign has no enterprise customers for the Digital Brand Management Services to announce yet. And industry analysts — while impressed with VeriSign's suite of offerings — say customers may be slow to sign up.

"The biggest challenge for VeriSign is educating the enterprise that they need these services," says Mikael Hook, an analyst at Current Analysis. "VeriSign needs to focus more on the management and marketing executives."

The Associated Press has used Cyveillance to find unauthorized use of its content on the Web for two years. George Galt, director of business affairs for AP, says he's happy with the Cyveillance service but doesn't plan to outsource additional domain name-related services to VeriSign. Galt says the general counsel's office where he works doesn't manage AP's domain names.

"AP has a very large communications department, and I believe they handle [it]," he says. "If you look at ap.org, there's not a lot there. We don't sell to individuals, so we don't need to attract people through the Web site. So we're not the best example [of a potential customer for VeriSign]."

Ted Chamberlin, a senior analyst with Gartner, says multinational companies are ready to outsource domain name management.

"VeriSign puts a lot of weight behind this market," Chamberlin says. "It's going to be a sweet offering."

But Chamberlin warns that VeriSign has to be careful not to charge too much. "This is going to hinge on VeriSign's ability to not blow the roof off pricing," he adds. ■

Segue refines Web load-testing package

■ BY DENISE DUBIE

LEXINGTON, MASS. — Customers looking to verify the content of their Web pages and get a better sense of how their Web site is performing may be interested in software from Segue Software.

Segue last week bolstered its traffic testing software, SilkPerformer V, with the ability to verify content while performing load tests, the company says. The feature simulates users visiting a Web site, clicking on applications and requesting content. During the tests, the software checks if the

content being delivered to end users is accurate and error-free, the company says. Often when an application is stressed to perform under peak loads, it will deliver errors in content, Segue says.

And with another new component, TrueLog Explorer, SilkPerformer users get a visual log of all errors that occurred during the test. Typically, users would have to manually go through logged text files after the tests. The software also reduces the risk of "swamping the system" by only reporting on the errors that occur during the test, rather than sending all the performance data at once.

The company also improved SilkPerformer with wizards to walk users through the scripting process they use to create simulated transactions used in the tests.

See Segue, page 22



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Forgettable songs?

do — it can be hard for light to penetrate through twisted tunnel vision.

As an author, I am not one of those "data wants to be free" folks. I do not support ripping off other people's copyrighted material. I own all the CDs that make up the two-and-a-half days' worth of music I recently put on my PowerBook.

But my first reaction to the Napster explosion was that it should be telling the industry to reexamine its business models. In contrast, that seems to have been the last thing the music industry considered.

The industry eventually figured out that there might be a business lurking somewhere. (The approach reminds me of a joke whose punch line is "there has to be a pony in here somewhere.") The first of the industry's major efforts was announced early this month and seems to have been developed in a vacuum by someone stuck in a logic-reversal space warp.

MusicNet, like a soon-to-be-announced competitor called Pressplay, is a music subscription service. For a monthly fee, customers can listen to streaming audio and download songs to their computers. The basic MusicNet RealOneMusic service, which permits downloading 100 songs and listening to (but not storing) 100 more, costs \$9.95 per month, about the cost of a low-end CD. Ten dollars more per month gets you additional songs, plus online news, sports and entertainment channels. This all sounds reasonable, but reason soon ends.

From a customer point of view there are a lot of things wrong with MusicNet. You are only renting the songs; if you stop making the monthly payment, the songs get into "Mission Impossible" mode and self-destruct. You also cannot download the songs into a portable MP3 player.

Another issue is that MusicNet and Pressplay are incompatible, which means

music downloaded with one isn't playable on the other. So if you don't want to play music in your car or when walking, don't want music from many vendors and don't like the music enough to want to keep it — MusicNet is the service for you.

It may just be me, but this seems like a rather impotent weapon in the fight against the growing number of ways you can get music for free over the 'Net. But who knows, if it stays in business long enough, someday you might be able to keep the songs you pay for and like.

Disclaimer: You get to keep your expensive Harvard education, so Harvard has no opinion on the transient songs of MusicNet.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

RSA Security updates security suite

■ BY ELLEN MESSMER

BEDFORD, MASS. — RSA Security recently announced an updated version of its public-key infrastructure software suite, adding ease-of-use features such as self-service registration for digital certificates and a recovery process for lost or damaged encryption keys.

The PKI suite, Keon 6.0, contains a certificate authority, security server, desktop software and a Web browser plug-in called Keon WebPassport. The suite lets administrators issue digital certificates to secure applications. A digital certificate is an elec-

The RSA PKI suite can provide Web-based self-service enrollment for issuing digital certificates.

tronic credential that links an individual's identity to encryption keys in order to check the integrity of files and e-mail.

The changes in the latest version of Keon,

which will ship by year-end, are wide-ranging. The RSA Keon WebPassport now has a default timeout, which is important to satisfy one of the requirements made by the Health Insurance Portability and Accountability Act regulations from the U.S. Department of Health and Human Services.

Another change in the RSA Security PKI suite is that it can be set up to provide Web-based self-service enrollment for issuing digital certificates, so an automated process can link back-end databases storing information about applicable users and authentication data.

"When you download your credentials, we also have a 'trust list' of public-key certificates that your company trusts," says Brian Breton, RSA's product marketing manager for Keon.

An administrator can also recover lost or damaged encryption keys used by Keon Desktop software through Keon Certificate Authority. RSA bases key-recovery capabilities largely on those provided in the PKI products from XCert, which RSA purchased last year.

According to Certeca, a Cayman Islands company that issues certificates for financial firms, the latest version of Keon appears to add some improvements that the company wanted.

"Some of our clients do care about key-recovery," says Matthew Barnett, CTO at Certeca. "But for us a big concern is 'hot backup,' which is replicating the software at alternative sites as a backup." This is not easy to do with PKI, he says, but RSA appears to have improved on this in the latest version.

Keon Desktop, which is bundled with Keon Server, costs \$75 per user. The Keon Certificate Authority costs \$30 per user, and Keon WebPassport costs \$40 per user.

RSA: www.rsa.com

Segue

continued from page 21

One user says the new features will help less-experienced staffers get up to speed on using the software.

"With the wizards, users can take advantage of that automation and use less time writing code to run tests," says Carl Gerstle, senior quality assurance engineer at Mirror Image Internet in Boston. Gerstle has been beta-testing the product for about a month and has used Segue load-testing products for more than four years.

SilkPerformer V server software can be installed on any Microsoft Windows server or workstation. The software emulates the conditions of a Web site under different traffic loads and simulates users making requests for content and performing other Web-related transactions. Network administrators write scripts with the server software. The scripts then run against Web and application servers and databases, monitoring how well the machines respond to their requests. The scripts return performance metrics, such as application response time, server utilization and availability to the server software.

Segue's SilkPerformer competes most closely with Mercury Interactive's LoadRunner product.

SilkPerformer V is available for \$50,000 for unlimited load testing for up to 100 virtual users. Users of SilkPerformer 4.5 will get the upgrade free.

Segue: www.segue.com

iPlanet adds single sign-on

■ BY MATT BERGER

Sun last week released a new version of its iPlanet Directory Server that includes a central service for identifying and authenticating users in the directory.

The iPlanet Directory Server is software that provides a central repository for managing policies in a network of users. It is a component of the iPlanet product line of servers, which is part of iPlanet E-Commerce Solutions, a Sun subsidiary formed through an alliance with AOL Time Warner's Netscape division.

The Access Management Edition, available now, adds a Web-based single sign-on service that lets users sign on to the directory and use Web-based applications and services without having to reauthenticate each time. The server software will be the home of future technology developed by the Liberty Alliance Project, an industrywide effort to create a common technology for authenticating users on the Internet, Sun says.

However, what that technology will be in the Liberty Alliance and how it will fit into the Directory Server is up in the air. The Liberty Alliance is still in the process of gathering member companies to develop a technology that will let multiple authentication services communicate with each other.

AOL and major Web sites including American Express and United Airlines have agreed to include Liberty Alliance's common technology with their authentication services.

The iPlanet Directory Server includes administrative features for managing the applications and information that can be accessed by employees, customers, partners and suppliers, the company says. The iPlanet Directory competes against Microsoft's Active Directory software and Novell's Directory Services software.

Berger is a correspondent with IDG News Service's San Francisco bureau.

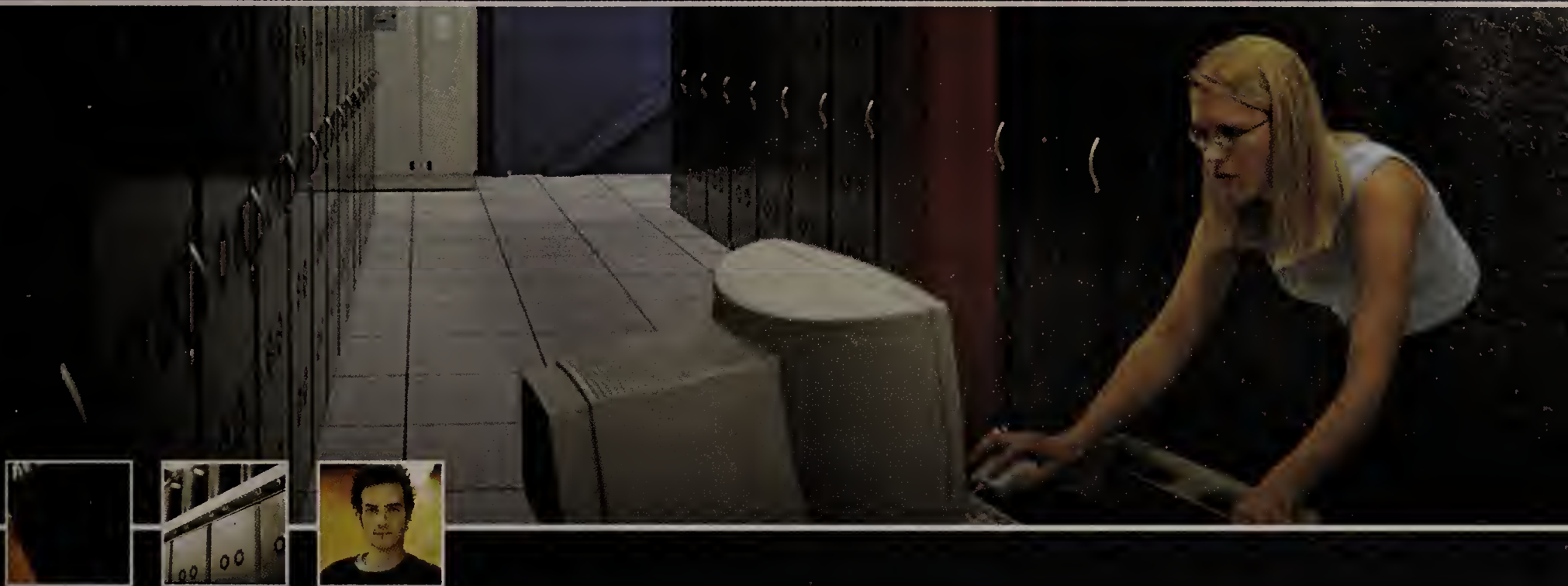


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Read how Rick Parkinson of Cymerc Exchange chose an MSP over Segue's Software.

DocFinder: 7436

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APPLICATION INTEGRATION: Tools that bring together islands of information.

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■ BY KATHLEEN OHLSON

Maintenance, repair and operating supplies distributor W.W. Grainger — in business since 1927 — launched a Web site in 1995 to bring its wares closer to customers. The company also continued to take orders the old-fashioned way — manually.

The Chicago supplier worked with disparate Internet and legacy order-entry systems for the next four years, taking orders on the Internet and then entering them into a legacy order-entry system. Internet orders would be faxed to Grainger's call center, where they would be manually entered into the main order management system. Order updates were performed nightly, so in some cases, customers would place orders, and find out later that items weren't in stock.

"Our old, online purchasing process served as an obstacle that" didn't let customers have the best information and correct products on time, says Pat Davidson, Grainger's vice president of information systems. "This was frustrating for our customers, and it was frustrating for us. We had to make a change."

So Grainger revamped its legacy order systems, implementing an SAP R/3 enterprise resource planning (ERP) system and webMethods' integration platform to connect the R/3 software with the Internet via XML.

Grainger's tale is a typical one. After years of building separate ERP, customer relationship management, manufacturing, accounting and marketing systems — often customized for different internal divisions — businesses are confronting their back-end setups and the reality that these systems need to be integrated as they rush to

to hook up with partners, they must clean up their own backyard," he says.

As a result, companies often hand-code applications to each other as a temporary fix.

"Hand-coding doesn't work because you can't stop and glue everything together for each business you start — you've got to be ready all the time," says Amy Hedrick, an analyst at AMR Research. Companies that hand-code are connecting 50 to 100 applications, and often the process isn't documented or includes different languages. "It's a mess," she says.

Analysts expect emerging Web services to ease the burden of integrating applications and systems. Web services rely on XML; Simple Object Access Protocol; Universal Description, Discovery and Integration; and Web Services Description Language, and lets businesses build applications that pull together information from multiple sources internally or over the Internet. Application integration is expected to become easier for companies when integration packages support these standards.

"Web services will be an important part of the IT infrastructure and ecosystem, but right now people are still making plans for how to use them," Hedrick says.

Application integration doesn't always get the attention it deserves within organizations, experts say.

"Integration is neglected. It's the black hole in IT budgets," Dial says. Business-integration software packages cost an average of \$6 million to \$8 million, with \$2 million per year in maintenance fees. Most companies have difficulty measuring return on investment for integration projects, he says.

Integration isn't glamorous — like e-commerce — or



“[Integration is] 75% politics, organization and policy, and 25% infrastructure and technology.”

Dr. John Halamka
CIO, CareGroup

outpatient facilities. CareGroup has about 1 million patients and 9 million records on file.

"[Integration is] 75% politics, organization and policy, and 25% infrastructure and technology," says Dr. John Halamka, CareGroup's CIO. Integrating systems and data becomes a "turf war," one that only gets amplified when it comes to mergers. "At first you think: 'Gee, it's a merger — it's great and we'll all work together.' Then it's competition, fighting and 'I hate you.' And then you agree to work with each other."

One of the more challenging aspects of integration is that it never ends.

"Are you ever finished? No, but the lion's share of the work is done," says Ken O'Brien, CIO of Wallace Computer Services, a Lisle, Ill., print manufacturer. "It's an ongoing effort as you continue to introduce applications and new products to fit in."

Wallace Computer Services started its integration project in 1992 combining proprietary Hagen Manufacturing, IBM's MQSeries and PeopleSoft's ERP software. It also integrated 50 manufacturing sites in Georgia, Texas and Colorado; more than 100 sales sites; and customers such as J.C. Penney, Royal Caribbean and Johnson & Johnson into its system.

The print manufacturer has spent \$80 million on integration projects over the years, including offering pricing information to customers at a central location and its e-commerce order-management and billing system.

Meanwhile, CareGroup recently went live offering multimedia capability to all affiliates to watch films, magnetic resonance imaging and computerized axial tomography scans.

Grainger recently added punchout capability to Ariba's marketplace, which would let buyers entering Ariba marketplaces enter Grainger's site for product information.

Companies that give short shrift to integration projects would do well to change their ways, industry experts and customers say.

"The Internet forced us to rethink our business model," Grainger's Davidson says.

"It has affected the way we service customers, the way we transact business and the way we communicate with one another. As a result, IT is integrated now, more than ever, into our strategic business planning process," Davidson adds.

"If companies don't pay attention to this, they'll get creamed," O'Brien says. ■



“Our old, online purchasing process served as an obstacle . . . This was frustrating for our customers, and it was frustrating for us. We had to make a change.”

Pat Davidson

Vice president of IS, W.W. Grainger

connect to customers, trading partners, suppliers and manufacturers.

According to a recent Gartner study, the worldwide application-integration and middleware market totaled \$3.8 billion in 2000, and is expected to rise to \$11 billion in 2005. IBM, webMethods, Tibco, SeeBeyond and Peregrine Systems are some of the companies involved in the application-integration arena.

"Business-to-business generated a lot of excitement a year ago, and businesses thought this would be a great opportunity to automate what goes on between themselves," says Chris Dial, an analyst at Forrester Research. Businesses thought integration was a matter of plugging some systems together, but they realized integration went beyond that.

"They realized [integrating applications] was done point-to-point and it opened a can of worms. In order

trendy — like Web services — but it's critical and often ignored, cropping at the most inconvenient times, such as during mergers.

CareGroup in Massachusetts started its integration project in 1996 when six hospitals — Beth Israel, Mount Auburn, New England Baptist, Deaconess Waltham, Nashoba and Glover — were merged. The project combined clinical data from all the hospitals to create a common view of records.

The healthcare group, which has more than 15,000 employees and 100 affiliates in eastern Massachusetts, used SeeBeyond's eGate Integrator platform and eXchange Partner Manager software to manage business partner relationships, and eIndex software to cross-match customers.

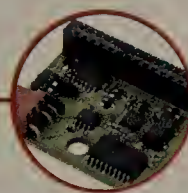
This created a central view of its patients and where they were registered — hospitals, nursing homes or

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Sizing up Home vs. Pro for teleworkers

If it feels like a 100% home setup, then go with Windows XP Home; otherwise stick to Windows XP Pro.

■ BY STEVE JANSS

Whether you're a network executive tasked with upgrading your 200-plus teleworking fleet or a home-based business owner pondering a new operating system, you need answers to these questions: Should you upgrade to Windows XP? If so, why? Which version, XP Home or XP Pro best meets your needs? What's the most

cost-effective upgrade path?

If you're using Windows NT 3.51, 4.0 or 2000, you're enjoying an operating system that's robust, fairly secure and well suited for the business environment. Unfortunately, while it works with most business software, NT's range is limited. If your operating system is in the Windows 95/98/Millennium Edition line, it runs an array of software, but it may not be as stable.

XP offers a robust and stable operating system that runs most of today's software. While you may be content with what you have, XP's long list of new features might turn your head. Here are some new features of the Home and Pro versions:

- Remote Assistance lets you invite a trusted XP user (such as a corporate IT staff member) to chat with you, observe your screen, and even (with your permission), remotely control your computer — perfect for remote "how-to" demonstrations.

- XP's Internet Connection Firewall provides rudimentary protection against Internet threats, but consider adding an International Computer Security Association-certified desktop firewall such as Tiny Software's Personal Firewall 2.0 (\$39 for corporate use, free for home use; www.tinysoftware.com). Tiny's firewall sports more comprehensive features and integrates with Tiny's centrally managed firewall.

- Graphic artists and wordsmiths will love XP's Dualview feature, which lets you use XP's video drivers with two monitors (and a laptop or dual-output video card) for unprecedented visual real estate.

- CD burning goes native in XP, offering full drag-and-drop support for all leading CD-R/RW drives, and frees your teleworkers from having to master yet another program. Nothing is easier for backing up your data or sharing large files.

Going Pro

Systems administrators supporting their teleworkers' remote systems will love the additional features found in XP Pro. Although it costs \$100 more than XP Home, the added features make it worth the cost:

- Remote Desktop lets an XP Pro teleworker access his machine, and all of its programs and files, from any 32-bit Windows program running a Terminal Services client, even over the Internet. No more hoofing it back to the office to retrieve forgotten files and run software that only works on your corporate LAN.

Take the right path to XP

A handful of legacy Windows versions plus two versions of Windows XP make upgrading an exercise in confusion. Here are some tips to help you find your way:

If you have ...	... your options are:	
	XP Home	XP Pro
Windows 3.1	Full (\$200)	Full (\$300)
Windows 95	Full (\$200)	Full (\$300)
Windows NT 3.51	Full (\$200)	Full (\$300)
Any Evaluation version	Full (\$200)	Full (\$300)
Any Server version	Full (\$200)	Full (\$300)
Any non-Windows operating system	Full (\$200)	Full (\$300)
Windows 98 or 98 SE	Upgrade (\$100)	Upgrade (\$200)
Windows Millennium Edition	Upgrade (\$100)	Upgrade (\$200)
Windows NT 4.0	No upgrade available	Upgrade (\$200)
Windows 2000 Professional	No upgrade available	Upgrade (\$200)
Windows XP Home Edition	No upgrade available	Upgrade (\$200)

NOTE:

- Prices are approximate street prices.
- Users of Windows XP Pro cannot "downgrade" to Windows XP Home.



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- The Remote Installation Service is great for rolling out XP Pro to your entire fleet, except for teleworkers. Unless their Internet connection is on par with 10Base-T, you're better off making a house call.

- Laptop users will relish XP Pro's Encrypting File System, which protects sensitive corporate data stored on your NT file system volumes.

Does your teleworking staff require support for Network Monitor, SNMP and IP Security? Then XP Pro's the way to go.

Finally, if your teleworkers are members of a Win 2000/NT domain, they'll need XP Pro. (XP Home users can still access domain resources — they just can't be domain members).

To help decide which version of XP is right for you, or whether you should upgrade at all, we've organized users into three tiers. For simplicity's sake, assume Tier II and III teleworkers are connecting to their corporate LANs via VPN.

Tier I: Home-office workers who don't access a corporate network. They maintain their own systems. Whether these folks upgrade to XP, and which version they may choose, depend a great deal on what they do. If all they do is write, there's little incentive for them to upgrade to XP. On the other hand, if they want some of XP's new fea-

tures, then XP will suit them well.

Tier II: Teleworkers who access the corporate network but who are self-maintaining. Those within this group will be happy with Win 2000 or XP Pro. If you're using an operating system earlier than Win 2000 Pro, upgrade to XP Pro. If you're using 2000 Pro, you might wish to hold steady for a while because the features in XP Pro aren't sufficient to warrant an upgrade.

Tier III: Teleworkers who access the corporate network and rely on IT to maintain their systems. Tier III folks will definitely benefit from XP Pro's Remote Desktop and XP's Remote Assistance.

Bottom line, if it looks, acts and feels like a 100% home setup, then you might be OK with XP Home. But if there's even a whiff of corporate activity, you'll probably need one or more features found only in XP Pro.

Whether you choose Home and Pro, you can save \$100 by upgrading from an eligible version (see graphic). But if you're stuck buying the full version, your computer is probably old enough to consider trading in for a new one with XP preinstalled.

Janss is the president of Jansys Information Systems, a consulting firm specializing in IS technologies for small businesses. He can be reached at bizcom@jansys.com.

Short Takes

■ **01 Communique Laboratory** has announced the availability of its remote access service I'm InTouch. The product lets remote and mobile workers access their corporate PC desktop for Outlook or Outlook Express e-mail or PC files from any Web or wireless browser. Data is transferred over a direct peer-to-peer 128-bit Secure Sockets Layer connection (no third-party host). I'm InTouch includes a three-part passcode, and works behind most firewalls. The product costs \$10 per month or \$100 per year per user. www.imintouch.net

■ Shipments of **Bluetooth** will climb to 13 million this year, according to a study by Cahners In-Stat. Double the shipments of 802.11b chipsets, Bluetooth components are being built into mobile phones, notebook PCs, adapters and PDAs. The report, "Bluetooth Overtakes 802.1x with 2001 Shipments on Track" predicts chipset shipments will soar to 780 million units by 2005. www.instat.com

■ **Valence Semiconductor** jumped into the power line networking ring last week, offering a single-chip front-end interface that works in conjunction with digital CMOS baseband chips from Intellon, Cogency and Conexant. Valence says the design can lower the cost of power line preprocessing by up to 50% by reducing the need for external components. www.valencesemi.com

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Short Takes

■ **BellSouth** this week is expected to unveil an alliance with **Air2Web** that will let BellSouth customers enable wireless devices to access e-mail, customer relationship management and other programs. Air2Web will provide the software infrastructure that enables the wireless communication in BellSouth's two e-Business Centers in Atlanta and Miami. Customers must host their applications at e-Business Centers, or have a connection from another hosting site into one of the centers. www.bellsouth.com

■ **Digital Island**, a Cable & Wireless company, is offering a new service that lets companies spread traffic among their own data centers — and out to public networks — all to their liking. The service, called **Intelligent Traffic Management**, was officially launched last week. ITM lets corporations determine how they want traffic balanced by setting criteria such as geographic location, load share and server availability. The service is available for \$5,000 per month.

■ Congress has been asked by the Federal Communications Commission, **NextWave Telecom** and a group of wireless companies to enact legislation that would confirm the terms of an agreement they reached in a recent spectrum dispute. The settlement, forged last month, calls for a group of wireless carriers — including Verizon Wireless, AT&T Wireless and Cingular Wireless — to pay the FCC \$15.8 billion for spectrum licenses that they bid on during an auction last January. In June, a circuit court in Washington, D.C., nullified that auction because some licenses had been acquired by NextWave in 1996 for \$4.8 billion and then were revoked by the FCC when NextWave failed to make all the payments. Under the November settlement, the FCC would pay \$5.8 billion to NextWave out of the sum it receives from the other wireless carriers. Lawmakers expressed frustration with being called on to judge the complex settlement in a very short time.

DSL cuts frame access costs

■ BY TIM GREENE

Users can save money setting up frame relay and ATM networks by using DSL access links rather than more expensive 56K bit/sec or T-1 lines.

Supporting speeds from 144K bit/sec to 7M bit/sec for downloads, DSL is as fast or faster than competing technologies, and providers say they can offer it at prices hundreds of dollars less per month (see graphic).

AT&T and WorldCom offer DSL as options to their frame relay and ATM services, and Sprint and Verizon say they are considering it. And while the recent woes of DSL service providers make users nervous, some find that DSL offers the only affordable way they can set up the networks they need.

AT&T's DSL Access to Frame Relay Service, for example, made it possible for a chain of tire stores and a chain of movie theaters to tie their nationwide sites in to their corporate headquarters.

"Without DSL, the price wouldn't have fallen into where I needed it, and the whole project might not have flown," says Harry Fikentscher, director of IT for

Morgan Tire, based in Clearwater, Fla. Morgan Tire is using DSL to connect 79 of 443 sites to its frame relay network. The savings that DSL represented kept the average monthly cost per access

line on his network using a mix of DSL, 56K bit/sec and T-1 access to \$125, which fit into his budget.

Similarly, Sony Leows Theaters use 100 DSL lines to connect theaters to the corporate frame relay network to coordinate ticket sales, give e-mail access and remote monitoring of network gear in the theaters.

"Cost, cost, cost," is the reason the theaters use the technology, says Fred Huber, Sony Leows' IT director. He would not have had enough in his budget if he had to spend up to \$325 per month for 56K bit/sec lines rather than \$170 per month for 144K bit/sec DSL connections.

Even so, users should know DSL has not been without pitfalls. Huber says he had 50 of his theaters hooked up using DSL from a provider called Zion Communications, which in turn subcontracted with NorthPoint Communications to install the DSL circuits. When NorthPoint went belly up, he lost all the

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Savings from DSL

Some service providers offer DSL lines as a means to connect to frame relay networks for less money. Here are pricing examples from AT&T:

Line	Price
56K bit/sec dedicated line	\$323
256K bit/sec dedicated line	\$800
128K bit/sec DSL line	\$170
256K bit/sec DSL line	\$225

Note: Prices include the line, a network port and one virtual circuit.

lines. It took two weeks to switch them over to AT&T.

"DSL is a good sell on price, but I think people are still scared about its reliability," says Pat Hurley, an analyst at TeleChoice. This year, all three of the major start-up DSL providers, Covad Communications, NorthPoint and Rhythms NetConnections, have filed for bankruptcy protection. WorldCom bought up Rhythms leases on space in 709 local carrier switching offices, indicating its

See Frame, page 30

C&W bolstering net with OC-192, MPLS

■ BY DENISE PAPPALARDO

Cable & Wireless announced last week that it's beefing up its IP backbone with more capacity and network management support that will eventually lead to new services.

The service provider is deploying Juniper Networks' M160 Multi-protocol Label Switching (MPLS) routers throughout its network. The devices support OC-192 (10G bit/sec) transmission speeds and MPLS traffic engineering.

C&W has seven Juniper devices deployed between the U.S. and Europe and plans to have 23 OC-192 nodes installed by the end of 2003, says David Garbin, chief engineer, network architecture.

"This is our first step in moving our architecture from IP over ATM to a worldwide MPLS infrastructure," Garbin says. "MPLS is the way we're going to engineer traffic

delivery at the core of our network. MPLS offers less overhead than ATM and scales to OC-192."

The main advantage for customers is that C&W can better support OC-48 dedicated services in the cities where it has upgraded to OC-192. But initially this will only benefit large enterprise users and other carriers, says Steven Harris, an IDC analyst.

Customers with content-rich Web traffic are also expected to be more interested in OC-48 connections, which is a growing customer base for the service provider. Last year C&W acquired Web hosting service provider Digital Island and is also in the process of buying Exodus Communications.

But only a handful of C&W business users will require OC-48 links to the Internet, Harris says.

See C&W, page 30

OC-192/MPLS upgrade

Cable & Wireless is upgrading its network to support OC-192 and Multi-protocol Label Switching. It has the necessary nodes in:

- London, Amsterdam, Brussels, Paris, Frankfurt, Washington, D.C., and New York.
- In March 2002 there will be five more nodes in Atlanta, Chicago, Dallas, Anaheim, Calif., and Santa Clara.
- By year-end 2003 there will be 11 more nodes, for a total of 23, in Germany, Japan, the U.K. and the U.S.

EYE ON THE CARRIERS

Johna Till Johnson



A few weeks ago, I got a great letter from a reader who said that he'd recently renegotiated his frame relay contract (good) and gotten favorable rates (better). But he'd been unable to obtain the service-level agreements I had recommended in a previous column.

He was wondering: Was this because his company is too small to obtain the results I'd written about?

He's partially correct. As most readers know, a big variable in the rate equation is

Size not the be-all, end-all in carrier negotiations

the dollar volume of traffic a company is willing to guarantee to the carrier (called the minimum annual revenue commitment, or MARC). The MARC is almost always less than the company's overall traffic volume, because a company would be foolish to commit to delivering its entire traffic volume. But in general, the MARC is a good measure of the size of a company's network.

Carriers prefer large MARCs because they help make revenue predictable. Typically, the larger the MARC, the lower the rates, and the better the contract terms and conditions, including SLAs.

So is bigger always better? Not necessarily. Companies with large (\$10 million to \$50 million) and extralarge (\$50 million to \$500 million) MARCs are most likely to garner the best deals, and it doesn't hurt

that these folks can usually afford a world-class team of lawyers and professional negotiators.

As a consultant, I get the greatest satisfaction helping companies with small (\$1 million to \$5 million) and midsize (\$5 million to \$10 million) MARCs negotiate their contracts. That's because, at these sizes, the overall quality of a deal depends greatly on the negotiation strategy: The harder you negotiate, the more you can get. Most small and midsize companies simply don't realize they could be doing better, so they walk away from the table too soon. Some of the best rates and SLAs I've ever seen are in small contracts.

This reader happened to have a traffic volume of less than \$1 million annually, so there was less leverage with the service provider. But that wasn't the reason he

didn't get the SLAs. More important than the size of the deal was that the carrier was the incumbent — and the reader's company was generally satisfied with the provider's service. Latency was low, availability high, and all the corporate applications ran fine across the WAN.

So while the reader had solicited bids from alternate providers, he wasn't really serious about switching, and the incumbent could sense that his heart wasn't really in the negotiations. Bottom line: A bigger MARC helps, but aggressive negotiations can be almost as effective.

Johnson is senior vice president and chief technology officer for Greenwich Technology Partners, a network consulting and engineering firm. She can be reached at johna@greenwichtech.com.

Frame

continued from page 29

interest in the technology. SBC Communications has bailed out Covad at least for the next year.

Because DSL runs over regular phone lines, these wires must be leased from the local, regional Bell operating companies. Some frame relay providers also get DSL connections installed by other providers, making it hard to assure service quality.

"Service-level guarantees are not as comprehensive for DSL," says Randy Rector, manager for WorldCom's frame relay and ATM services, which offers a DSL option called Enterprise DSL. Some local providers that own the actual copper loops used to carry DSL only staff their repair services from 8 a.m. to 5 p.m. Monday through Friday. That means WorldCom can't offer a 24-7 repair guarantee in these locations, he says.

The average time to repair a downed DSL link is 24 to 48 hours, says Alan Benway, an AT&T product manager. That amount of downtime would be unacceptable for a T-1 link but might be OK for a DSL link, especially considering the price. Also, network delay can be longer, Benway says.

But in practice, Huber and Fikentscher say they see no difference in service quality between their DSL lines and 56K bit/sec lines.

The need for 56K bit/sec lines points up another problem with DSL: It's not available everywhere.

The speed that DSL supports varies depending on the quality of the line and the distance to the switching office. In some cases, DSL is unavailable altogether because customer sites are too far away from a central office.

By contrast, 56K bit/sec data lines and T-1s come with consistent bandwidth guarantees, regardless of distance. Under ideal conditions, DSL supports downloads up to 8M bit/sec.

Problems delivering DSL are less related to the technology than they are to the

business structures under which the service is offered, says Steve Taylor, principal with Distributed Networking Associates of Greensboro, N.C., and a *Network World* columnist.

Another service provider than the frame relay carrier, which adds a separate layer to managing and maintaining the service, generally provisions the lines for DSL. "There is nothing intrinsically that would make DSL less reliable," Taylor says.

Even so, potential users may balk at using DSL, and providers sometimes offer to substitute other links for free if the DSL proves inadequate. "I was very leery of it, but AT&T said it would provide us connections to sites, either DSL or frame relay, at the DSL price," Fikentscher says.

Some customers adopt DSL access to frame relay as an alternative to another inexpensive way to network many small sites — VPN. For a company that already has some frame relay links, adding sites via DSL requires learning no new technology. With an Internet-based IP Security VPN, users would have to buy new equipment and learn how to use it, AT&T's Benway says.

Despite limitations, there is room for providers to offer some service-quality levels. WorldCom offers DSL access to its frame relay and ATM services with three different levels of service priced differently. A 128K bit/sec DSL line with the lowest service class costs \$200 per month. A 1.5M bit/sec line with the top service quality costs \$1,500 per month. Other speeds and prices fall in between these rates. ■



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C&W

continued from page 29

"It's a little surprising that Cable & Wireless is rolling out OC-192 throughout its network," Harris says.

"It must mean that the company's traffic levels are such that they require increased bandwidth at the core," Harris says the majority of the company's business customers are small to midsize businesses that typically do not generate as much traffic as Fortune 500 customers.

AT&T and WorldCom have also deployed OC-192 and support MPLS, but not as many service providers are supporting MPLS.

In addition to using MPLS for traffic engineering, C&W is also planning new services based on its MPLS deployment. In the first quarter C&W will begin rolling out an MPLS IP VPN service based on the IETF RFC 2547. This is a network-based VPN service that lets a customer store routing tables for their

“ MPLS is the way we're going to engineer traffic delivery at the core of our network. MPLS offers less overhead than ATM and scales to OC-192. ”

David Garbin

Chief engineer, network architecture, Cable & Wireless

VPN on devices throughout the C&W network.

While not many providers are offering VPN services based on the IETF's specification, it's expected to become a more popular technology next year.

C&W is also planning a voice-over-IP service that would be coupled with its MPLS IP VPN offering.

Cable & Wireless: www.cw.com

C&W to buy PSINet Japan

The decision by Cable & Wireless to purchase PSINet Japan from PSINet for \$10.2 million last week marks the third in a string of recent moves to shore up its offerings in the U.S., Europe and Japan.

PSINet Japan offers Internet access and Web hosting services to business users there. Pending approval, the acquisition lets C&W, which operates a subsidiary in Japan called Cable & Wireless IDC, round out its backbone and service offerings in the Asia-Pacific region.

In the U.S., C&W has been beefing up its Web hosting network and service offerings. Two weeks ago, C&W announced plans to acquire Exodus Communications for \$850 million. In May, the service provider acquired Digital Island for \$340 million.

Although C&W has an agreement to acquire PSINet Japan, PSINet is operating under Chapter 11 bankruptcy protection. This means that other "qualified bidders" may try to buy PSINet Japan in a supervised court auction that is customary in bankruptcy proceedings. In fact, C&W is dealing with the same situation with its planned acquisition of Exodus.

However, if all goes as planned, C&W will integrate PSINet Japan into its Cable & Wireless IDC subsidiary early next year.

— Denise Pappalardo



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The Edge

■ SERVICE PROVIDER DEVELOPMENTS
AT THE JUNCTURE BETWEEN THE ENTERPRISE
AND THE NEW PUBLIC NETWORK

Caspian testing stellar core offering

IP switch maker's product plans are out of this world.

■ BY STEPHEN LAWSON

SAN JOSE — In a weakened Internet economy that has brought many ambitious start-ups back to Earth, Caspian Networks is still reaching for the stars.

The Silicon Valley developer of IP routing equipment says it's working on a carrier-class routing switch that will offer guaran-

teed quality of service and "infinite" scalability. And if that second part sounds pretty far out, Caspian's model for making it work is positively out of this world.

Caspian, founded by Internet pioneer Lawrence Roberts, is looking to solve some problems that have come with the Internet's success. Despite the dot-com and competitive local exchange carrier crash, Internet traffic is still growing at a dizzying rate, according to a study by Roberts that Caspian publicized last summer. Dealing with that growth requires a new model for the equipment at the core of carrier networks, Caspian executives and others say. At the same time, service providers are looking toward emerging services, such as toll-quality IP voice, that call for guaranteed throughput like that of the circuit-switched phone network.

With at least one of its goals — scalability — the company may be on to something big, according to RHK analyst Muayyad Al-Chalabi and a carrier testing the product.

Caspian is stingy with details about its platform, called Apeiro, but the company has confirmed a few basics: It will be an IP

network, the "sauce" can help deliver better service, the company says.

As for how carriers can expand the switch to keep up with unrelenting traffic growth, Caspian offers a model that might remind Star Trek fans of another unrelenting force: the Borg. Like the ever-expanding colonial system in that show, a large Apeiro would take advantage of the intelligence of many autonomous units connected together, according to Faizel Lakhani, Caspian's vice president of network solutions.

In this case, it means each interface module that goes into the switch has its own routing and forwarding intelligence, so the platform isn't limited by the capacity of a central, shared routing engine. That idea appeals to the chief network architect at a global carrier, who asked not to be identified.

"We want to grow this like you would grow a voice switch. You horizontally grow the switch rather than putting in a larger box," he says. The carrier is testing Apeiro as a possible replacement for ATM traffic engineering switches that it now uses to form a virtual mesh among its core routers.

Caspian isn't the only vendor pushing this concept, according to RHK's Al-Chalabi. Others include Avici Systems and Pluris. All

aim to evolve carrier data networks beyond an architecture for large-scale routing that came out of corporate networks — lots of separate boxes linked together. Advances in building application-specific integrated circuits have helped make it possible to build one big switch, one piece at a time.

"The functionality of routers, instead of fitting in a box, can sit in a port," Al-Chalabi says.

The carrier testing Caspian's equipment may want to deploy it around the world over a 12-to-18-month period, the architect says. But at least initially, it isn't interested in using the guaranteed-service "secret sauce."

■ PROFILE: CASPIAN

Location:	San Jose
Founded:	February 1999
Product:	Apeiro IP "superswitch" for the core of service provider networks.
Management:	Bill Sickler, CEO; Lawrence Roberts, founder, CTO; Cheryl Sanchez, CFO.
Financing:	\$140 million from 13 investors, including WorldCom and Lucent.
Customers:	Tier 1 global carriers
Employees:	150
Fast fact:	Roberts is considered one of the four "founding fathers" of the Internet.

Indeed, most carriers don't want to rely on one vendor's hardware or special capabilities, RHK's Al-Chalabi says.

"A guarantee across certain [devices] may not be that appealing unless it's part of a standard," Al-Chalabi says.

Apeiro will ship in the first half of 2002, and Caspian President and CEO Bill Sickler is looking to have three carriers committed to a purchase by September.

Sickler is confident that tough times in the carrier business will help Caspian sell its platform. Expanding a network by adding modules, rather than replacing boxes, will save carriers money, he says. Moreover, for a product that is infinite in size, one sale goes a long way.

"You don't have to ship huge numbers of equipment to generate a lot of revenue," Sickler says.

Lawson is a correspondent with IDG News Services' San Francisco bureau.



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Find out how 'Net traffic is growing faster than ever.

DocFinder: 7428

Short Takes

■ **Marconi** last week announced that it has signed a five-year, \$80 million network supply agreement with **Grande Communications**, a Texas broadband service provider. Marconi will supply Grande with its DISC*S and Deep Fiber HFC (hybrid fiber coaxial) access products, and some multiservice optical transport equipment. This system will bring optical fiber connectivity to within 750 feet of most of Grande's customers, letting Grande offer them faster Internet, telephone and cable television services, Marconi says. The company says it already has more than 3 million lines of fiber-based access capacity deployed worldwide. www.marconi.com

■ Virtual router start-up **Crescent Networks** last week announced interoperability with wavelength division multiplexers from **LuxN** and **SAN Valley's** IP-SAN connectivity systems. The interoperability means a routed network services system for delivering storage services across metropolitan nets can be built with these platforms, or added to existing connectivity infrastructures, Crescent says. By 2004, more than 6.7 million SAN ports will be shipped and almost 20% will be extended over metropolitan- and wide-area networks, Crescent says, citing analyst reports. The overall market for provisioning storage capacity will grow to more than \$5 billion by 2004, the company says. www.crescentnetworks.com, www.luxn.com, www.sanvalley.com

The Silicon Valley developer of IP routing equipment says it's working on a carrier-class routing switch that will offer guaranteed quality of service and "infinite" scalability.

routing switch designed for the core of large carrier networks, with interfaces including 2.5G bit/sec OC-48 and 10G bit/sec OC-192. It can work with carrier-core equipment such as Cisco and Juniper Networks routers, and supports Multi-protocol Label Switching and Differentiated Services standards, which those boxes use for IP traffic engineering and priority. It also includes something Caspian is calling "secret sauce" that goes beyond standard prioritization to offer an absolute guarantee about how traffic will behave on the network. Actually delivering on that guarantee would require a whole network of Apeiros, but even with just one Apeiro in a

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Technology update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

SOAP links disparate applications

■ BY CHARLES GORDON

Enterprise networks are moving to a distributed model in which multiple devices and computers work together on a network that features localized, rather than centralized, intelligence.

This has resulted in diverse devices being developed with a range of languages and operating systems running myriad applications.

For these devices to work together effectively and efficiently, there must be a common language to tie them together. An early leader in filling this need is the Simple Object Application Protocol (SOAP).

SOAP schema

SOAP is defined by two schemas developed by the World Wide Web Consortium (W3C).

First, the SOAP encoding schema describes how to encode data using a set of defined data types. If these data types are not sufficient, users can define their own data types.

Next, the SOAP envelope schema describes the overall format of SOAP messages. It also defines built-in ways of extending the message format to support

custom applications. SOAP specifications developed by the W3C also define how to use HTTP to send and receive SOAP messages. Although SOAP messages can be sent over any protocol, HTTP is used in most applications.

In theory, SOAP can be used to pass almost any type of data between two applications. In practice, it is normally used to make Remote Procedure Calls (RPC). When used to encode RPCs, SOAP is a request/response protocol.

An application encodes an RPC request into a SOAP message and sends it to a remote system.

The request identifies the requested operation and contains its parameters. The remote system sends back the reply in another SOAP message that contains the operation result.

Because it is based on XML, SOAP is language- and platform-independent. The two applications could be written in different languages and could run on different operating systems.

XML-based SOAP has many advantages over alternative ways of encoding RPC calls. XML's openness and popularity means that XML parsers are widely available, making it easy to write applications that use SOAP.

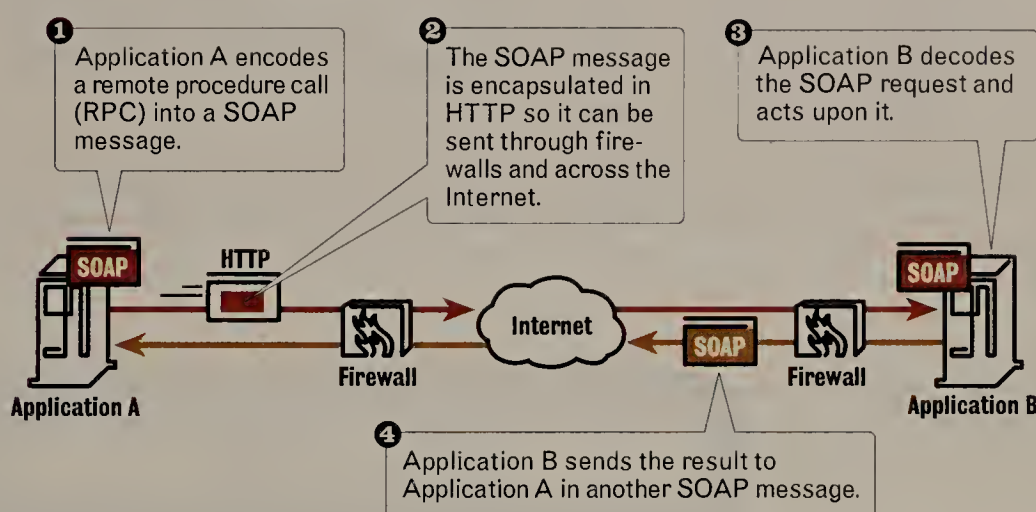
External Data Representation (XDR), the traditional encoding for RPCs, is not used for anything other than RPCs. Because of this, XDR encoders are not available on many platforms. Remote Method Invocation is tied to the Java language and cannot be used if applications that do not support Java are present in the network.

SOAP is lightweight and easy to use. CORBA could also be used for RPC calls,

HOW IT WORKS

Simple Object Application Protocol

SOAP can be used to send any type of data between applications irrespective of what platform the applications are built on.



but it is a heavyweight protocol and difficult to use — overkill for RPC-type applications. CORBA also has trouble penetrating firewalls because it does not use HTTP for its transport protocol. XML-RPC was a precursor to SOAP. Although it is very useful for simple RPC applications, it is not as extensible as SOAP. XML-RPC does not support user-defined data types, and XML-RPC messages cannot be extended to support specific applications.

The downside

SOAP does have some disadvantages. SOAP data encoding is very inefficient, as messages are encoded as text, making the messages cumbersome.

Further, SOAP messages use more bandwidth than equivalent binary messages. When SOAP messages are received, they have to be converted into binary data so

the application can act on them. Application developers can use off-the-shelf XML parsers to handle this task.

However, the XML parser will have to be incorporated into the application, making it larger, and a substantial amount of CPU time may be consumed parsing the messages.

If an application does not need to be platform-independent, or if communications bandwidth is at a premium, SOAP might not be the best solution.

However, SOAP support is becoming ubiquitous across many different platforms. If an application will be distributed across many different systems, SOAP is the better choice.

Gordon is principal engineer at NetSilicon in Waltham, Mass. He can be reached at cgordon@netsilicon.com.

Got great ideas

■ Network World is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).

Ask Dr. Internet

By Steve Blass

We've experienced the same problem as noted in the story about NetWare 5.1 Service Pack 3 upgrades causing drive mapping problems at logon time (see www.nwfusion.com, DocFinders: 7437, 7438). Here is the fix that I found that worked after contacting Novell tech support:

Bring down the server and go to the c:\nwserver prompt. At the prompt, type "dir servcfg*.*". There will be servcfg.nbk, servcfg.000(zeros) and servcfg.tmp files. These are server configuration

files that need to be recreated by the server after the upgrade for everything to work properly. Rename the existing files to get them out of the way without erasing them completely. We renamed them with an underscore for the final character in the extension. We used the ren command to make sure the original files were not left on the server; otherwise you could copy them and then erase the originals. After renaming the files, type "server" at the command prompt and the operating system will recreate the files.

Complete this process on all servers and the drive mapping problems at logon time should be resolved. The client versions and operating system versions on the workstation were not part of the problem we were having."

Thanks for the answer.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark
Gibbs



The NORTH/POLE project

According to the "World Christian Encyclopedia: A comparative survey of churches and religions — A.D. 30 to 2000," there are 19 large religious groups, of which Christians (consisting of about 34,000 separate groups) and those who do not express a religious preference number around 2.9 billion. That's around 47% of the 2001 estimated world population of just more than 6.2 billion (see www.nww.com, DocFinder: 7432). As there are roughly 2.3 billion humans younger than 19 (see www.nwfusion.com, DocFinder: 7433), 47% of that gives us a need for something like 1 billion records.

According to the specification document (which was a little vague and covered with bits of broken candy cane), a single GIFTS database record will consist of last, first and middle names followed by latitude and longitude of the child's residence recorded to six decimal places.

Assuming Earth is a sphere (which it isn't) that is 25,000 miles in circumference (approximately) gives an accuracy of 2.43 feet at the Arctic and Antarctic circles, 4.63 feet in New York City, 5.61 feet at the Tropics of Cancer and Capricorn and 6.11 feet at the equator. Of course, 6.11 feet is also the precision for longitude values. The gods must know why this would matter 'cause we don't.

Other required fields are gender, date of birth and finally gdoorbdcount. From these specifications it appears that the records will be around 1,024 characters each, giving a total database size of about 1 terabyte. This is achievable.

Of course, there will be indexes and other storage requirements, and they want RAID 5 so we figure that they'll need at least three times that, say, 3 terabytes. Now the project starts to get really ambitious — they want to process the database in 24 hours to examine each record and produce a list for records with gdoorbd greater than zero. This is asking for a lot — 1 billion in records in 24 hours is fractionally more than 4,629 records per second — that's more than 4.5M bytes per second! They must be mad.

Ah! We have the answer! Let's split that database over, say, 1,000 nodes each with 1 billion records plus a further 1 billion duplicated from another machine (for redundancy) using the Beowulf architecture.

Building a Beowulf solution would be cool (see www.nwfusion.com, DocFinder: 7434) and would let us significantly reduce the cost by using off-the-shelf PCs running Linux with Beowulf software. And for internode connections we could use the amazing network cards from Dolphin Interconnect to link the nodes on a

toroidal surface!

The per-node cost of this would be about \$3,000 for hardware, nothing for the Linux and Beowulf software, perhaps a further \$3,000 for custom software and perhaps \$3,000 for integration — that's about \$10,000 per node. This gives us a ballpark figure for the basic system of around \$10 million (plus our fees).

But it is the final processing task NORTH/POLE wants to do that is the killer: The resulting list (which we are told averages about 75% of the original database for around 750 million records) must be sorted for a minimum length routing based on latitude and longitude! This is the classic traveling salesman problem (see www.math.princeton.edu/tsp/) and on a scale that is not an even vaguely practical task.

At this point we must inform NORTH/POLE that an optimal solution will not be possible until a practical working quantum computer (see www.nwfusion.com, DocFinder: 7435) is available, which could be quite a long wait. Perhaps we should add that, given the season, perhaps they could ask Santa for a quantum computer. Then again, they might not be amused.

Merry Christmas from gearhead@gibbs.com.

Cool Tools

A roundup of the
latest neat stuff
Compiled by
Keith Shaw

Apriva's x57 can read credit cards.

those two options.

The magnetic card reader can read credit cards or any other standard magnetic stripe card. The bar code scanner can scan most 1D and 2D bar codes. The x57 is marketed to employees who need mobility when scanning magnetic cards or bar code scanners in inventory settings.

Because it's using a RIM 857 or 957 as its base unit, it can connect to Mobitex or DataTAC packet data networks to transmit transactions wirelessly.

Pricing and availability have not been announced. Go to www.apriva.com for more information.

Pendragon adds to its Internet Forms

Pendragon Software recently announced enhancements to its Pendragon Internet Forms software. The enhancements add data backup, new interface features, enhanced scripting and faster synchronization.

The Web-based development software can build database applications for Palm OS devices and Web-enabled terminals. It can be used to build custom applications, such as for surveys, work orders and healthcare.

The new data back-up feature lets handheld data entries be stored on Secure Digital, MultiMedia, Memory Stick and

Compact Flash storage cards. The back-up feature lets you recover data in the field in the event of power loss or physical stress on the device. The synchronization upgrade claims to provide improved performance with larger data sets. The Internet Forms 1.1 server software costs \$5,000 for a 100-user license. Go to www.pendragon-software.com for more information.

Rotate your flat-panel monitor

Planar Systems recently launched 15- and 17-inch flat-panel monitors that can rotate the display from landscape to portrait viewing. Planar aims to please the business and consumer markets, with high-contrast images, large format viewing areas, Universal Serial Bus hubs and built-in speakers.

The rotating screen lets users switch from landscape to portrait viewing with a twist of the display, eliminating the need to scroll down in some cases. Software allows for the

automatic display switch. The 15-inch PV150 supports resolutions up to 1,024 by 768 pixels (extended graphic array [XGA]) and has a viewable area equivalent to a 17-inch CRT monitor. The 17.4-inch PV174 is capable of 1,280-by-1,024-pixel (XGA) resolution, and features analog and digital inputs. The PV150 costs \$470 at zones.com, the PV174 \$830.

Diskeeper boasts fast defrag speeds

Executive Software International has released Diskeeper Workstation 7.0 for Windows 9X/Millennium Edition/NT/2000/XP, with new features that include faster run times and sitewide push installation. The sitewide installation feature lets system administrators push the installation in a single operation from one location.

Executive Software says Diskeeper 7.0 has "blazingly fast" defragmentation speeds, with "beta testers report[ing] that what used to take hours to defrag now takes minutes."

A full-featured 30-day trialware version for all Windows platforms can be downloaded at www.diskeeper.com/downloads/menu.asp. Pricing for Diskeeper Workstation starts at \$45 (electronic download) for one license; the Server version starts at \$250 (electronic download).

Send news of cool stuff to kshaw@nww.com.

Magnetic card reader for RIM devices

Imagine that you could add a magnetic card reader, a bar code scanner and a smart card reader to your Research In Motion two-way wireless device. You'd get Apriva's x57.

The device includes those features, plus an infrared port, a serial port and an internal lithium battery. If you only need a bar code scanner and a magnetic card reader, x57 can be configured to provide only



Planar Systems monitor can rotate to display from portrait to landscape.

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EDITORIAL

John Dix

A year that's best forgotten

If ever there was a tumultuous year in the network world, this would be it. From the imploding economy and the resultant strain it put on IT budgets, to the pounding many industry players took, and the reshaping of some basic industry sectors.

All the guys in the Rust Belt must be giggling. High tech is finally getting its comeuppance. Welcome to the real world.

Even though industry bellwether Cisco finished the year (in July) with revenue up 18% to \$22.3 billion, it had to swallow a \$1 billion loss in the process. But that's nothing compared to the red ink that rivals Lucent and Nortel posted. Lucent finished the year in September with sales down 26% to \$21.3 billion and a net loss of \$16.2 billion. Nortel has only reported nine months of 2001 but has already racked up \$25.4 billion in losses.

(Clearly Cisco has benefited from the fact that it has a large enterprise focus, compared with Lucent and Nortel, and more limited telecom exposure. U.S. telecom capital expenditures were down 11.4% in 2001 and are expected to drop another 22% next year.)

Surely economists will study these turbulent times for years, trying to figure out what begot what. Did the dot-com meltdown cause the telecom imbroglio, which then shook the stock market, which caused the correction, which led to the erosion of consumer confidence, which drove down spending, which pushed all varieties of companies into contingencies and the country into recession?

Bill Rouhana Jr., former CEO of Winstar Communications, a once high-flying competitive local exchange carrier now in Chapter 11, asks if a company such as Lucent is racked by the market or racks the market. "What happens to human psychology when one of the most valuable and most widely held companies is suddenly on the verge of bankruptcy?" he asks. "That kind of change is so fundamental, so challenges your basic beliefs, you can understand why investors change their point of view about things."

But regardless of cause and effect, the \$74,000 question is when and how do we climb out of this mess. Even Greenspan seems to be short on answers for that one.

About the only thing that seems clear is continued uncertainty about the near-term future. For every ray of hope comes a new cloud. Then again, Cisco's 1Q02 revenue was up 3% sequentially from the previous quarter ...

— John Dix
Editor in chief
jdix@nww.com

Drawing conclusions

Regarding the User Excellence Award piece on St. Elizabeth's Hospital (www.nwfusion.com, DocFinder: 7423): While the accomplishments of Don Woeltje and the hospital are admirable, the fact that he has a support staff of five makes that seem quite reasonable, even with a limited budget. Moreover, I would like to point out several implied conclusions that I felt were inaccurate.

First, switching to Exchange from GroupWise was not necessary to solve a technical challenge of connecting the e-mail system to the Internet; it was made for other reasons. Having run both systems, I can say that in any situation involving tight budgets and lean staffing, Exchange is not the answer. It is more resource- and maintenance-intensive by far.

As for running a single NetWare server, that would require so little in the way of maintenance that it is specious to imply it is a burden. Anyone with Windows NT and NetWare experience will tell you that the NetWare server is far more stable, less security "challenged" and requires far less work to keep up and running. GroupWise also will run on a Windows NT server. Keeping a single NetWare server to leverage the benefits of NDS across the network would be a judgment call, but a case could certainly be made for it over the current version of Active Directory.

What would have been more interesting would have been to see what, if any, solutions Woeltje and his staff could have found in the "free" domain, such as implementing a Linux network, utilizing Linux firewalls, wireless services and so forth.

Jeff Durfee
IT director
Milton J. Wood Co.
Jacksonville, Fla.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

opinions!

Efficiency expert

Regarding the "Technology Update" story "iSCSI enables Ethernet storage nets" (www.nwfusion.com, DocFinder: 7424): Unlike a number of iSCSI stories, your market positioning of iSCSI is accurate, but the statement "The net result will be iSCSI storage networks that are as efficient as directly attached Fibre Channel or SCSI storage," is just not true.

Even with an offload engine, TCP sucks the life out of the server by using more than 52% of a dual-processor system to achieve good bandwidth. Normal 1G-byte network interface cards use almost all of the dual processors for poor bandwidth. TCP is not nearly as efficient as Fibre Channel or InfiniBand.

Byran Longmire
Santa Clara

One size doesn't fit all

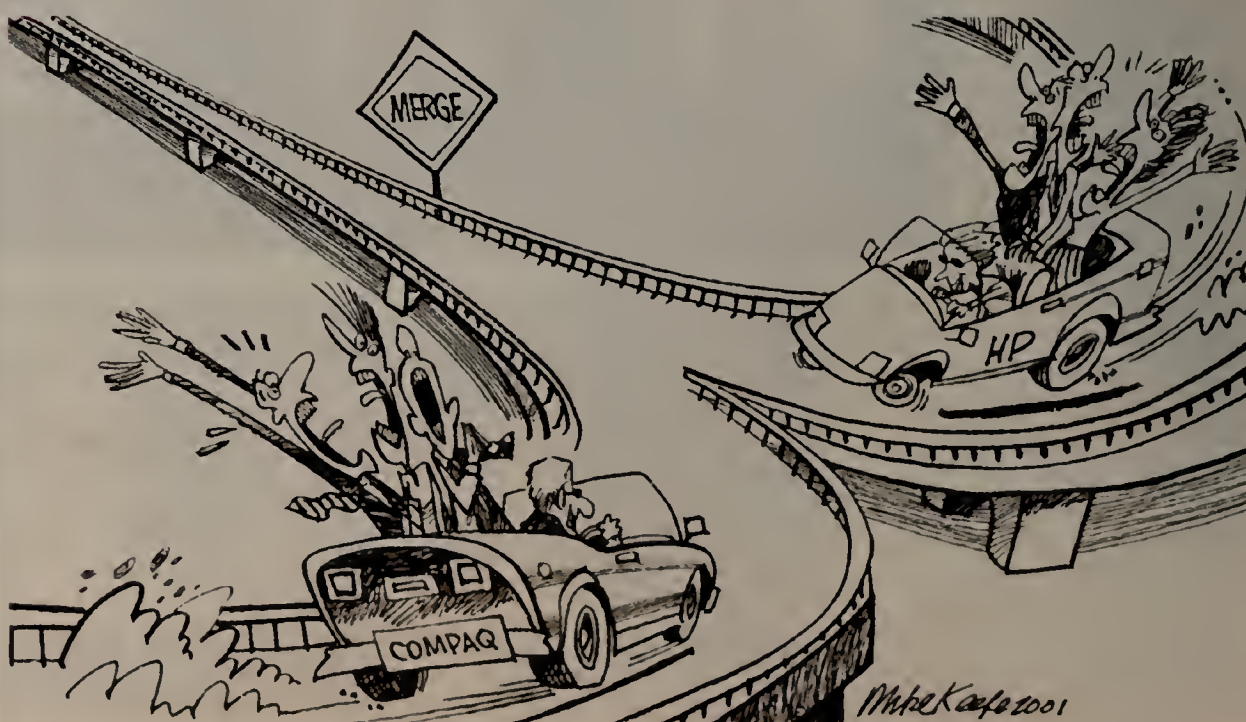
Regarding "Tivoli tames healthcare net" (www.nwfusion.com, DocFinder: 7425): If an IT manager is approaching the systems management problem by looking for one vendor to do it all, he will end up buying Computer Associates' suite of products or IBM's Tivoli. The question is whether that approach is the right one. From my 10 years of systems management experience, one-stop purchases or one-does-it-all solutions usually fail for many reasons, but mainly because implementing all of the disciplines in one shot takes a long time and removes your focus from your real problems.

Also, these suites lack in-depth functionality. Cutting large problems into smaller ones and solving the small problems with the right solution has always been more effective.

Mehmet Camat
Sales and marketing manager
Umit Bilgisayar Teknoloji
Istanbul, Turkey



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IN THE WORKS

Paul Hoffman

The holiday season is here. To some, it's a time for giving and receiving presents; to others it's a time of inward reflection during the shortest days of the year. Unfortunately, it can also be a time when it is easiest to break into computer networks and companies.

Physical security is always important to protecting corporate assets. The holidays present a particular challenge because there are fewer employees around due to vacations. Your regular security staff already has procedures for preventing loss of physical items, but one of the best deterrents to theft are your employees who might notice something is being taken by someone they don't recognize.

Because of the poor economy, more companies than normal are shutting down completely for the weeks near the end of the year. This makes these companies more vulnerable to theft. Of course, you can try to beef up security during the holidays, but that is often difficult when your buildings are nearly empty. Therefore, it is important to prioritize the security of your assets.

Think about the various information servers you have in your company. If some of them died today due to operating system or software errors, it could cripple your company. Those same servers are the ones that you should be putting the greatest emphasis on for physical security.

Of course, it's not only thieves who might try to prey on your com-

Security over the holidays

pany during the holidays. Crackers will probably be just as active, if not more so, in the coming weeks because they know that the people who might detect and thwart them will not be around. There's no better time to attack a company through its network than when the folks monitoring the network are away.

Many companies rely on active, human monitoring of their networks. If these folks are watching for hot spots of overuse, they probably are not needed during the holidays when the network is quiet. However, if you rely on network administrators to watch for suspicious traffic, having them on vacation for weeks may not be a good idea.

Even if you have automated intrusion detection that can send out telephone alerts, it is difficult to tell your IS staff to stay close to their beepers when they are traveling to see relatives for the holidays. It is even harder to ask them to do that if they are getting unexpected, unpaid "vacation."

During times of low network monitoring, it is also important to remind company staff about appropriate use of the network. If your company allows users to dial into the company's remote-access servers and connect to the Internet, it is probably wise to remind them that the service is meant for company use, not family use. Bored kids using their parents' computers can have less-than-fun effects on system administrators who are trying to enjoy their vacation.

Hoffman is director of the Internet Mail Consortium and the VPN Consortium. He can be reached at phoffman@imc.org.

Crackers may be just as active because they know that the people who might detect them will not be around.



TELECOM CATALYST

Daniel Briere and Beth Gage

Everyone would agree that it's been a tough year for the IT industry. But that's no reason to be a telecom Scrooge. We have some handy hints that ho-ho-hopefully will jump-start the telecom industry this holiday season.

First, some telecom decorating tips. Instead of those boring wires in red, green, yellow and black, try a festive array in maroon, sea-green, goldenrod and midnight.

Speaking of colors, get those red and green LED lights off your telephone company equipment and put them on your tree or house. The flashing red warning lights used to drive you crazy in the network operating center; now they'll make you smile.

Tired of having to throw out all those free CDs from AOL? With a little glue and some creativity, you can design a contemporary wreath that will be sure to turn heads in your neighborhood. They also make lovely coasters.

Good food will lighten up any occasion — including those "we need to downsize the company" gatherings. That old heat-producing ATM switch is perfect for baking a mouth-watering brisket.

If you plan to serve Chinese food to your guests, your satellite dish easily converts into a great wok. Or impress your friends by mixing your telecom terminology with your kitchen creations. Who will be able to resist menu items like Gravy over IP (Idaho Potatoes) and candy/baked goods convergence (fruitcake)?

Uncertain of what to do with that old technology? Here are some timely recycling tips.

Want to turn that outdated PC into a conversation piece? Simply convert your old monitor into a vivid aquarium, adding some flavor of the 21st century to any room. And don't throw away that old switch! Remove the blades and use the chassis for a high-tech trash can.

Every woman needs that perfect piece of jewelry to complement her holiday season party dress. The pre-Pentium processor brooch is the perfect accessory.

Wondering what to do with those worthless DSL local exchange car-

Tinsel and telecom tips

rier (DLEC) stock certificates? Why not use them as kindling for your hearth. If that doesn't light your candle, you could shellac them and turn them into a whimsical telecom mobile. Your depression will drift away gazing at the only "high-flying" DLEC stock available.

For the gift giver this year, forget that traditional wrapping paper. Instead, take the housings from your old routers, servers or PCs — take the guts out of each device — and then put presents inside. The kids will love taking out a screwdriver, Allen wrench or other tools to get to their presents.

We also have some helpful hints for dressing up technology. Cell tower cluttering your yard? Try stringing an assortment of lights around it, and you will have the largest and brightest holiday display in the neighborhood.

Instead of the boring, buried cable slogans, create entertaining signs for fiber right-of-way. You are sure to warm the hearts of people as they read placards labeled: "Warning: Children surfing below" or "Got 'Net access? If you dig here you won't."

Everyone shops for antiques these days, so instead of the predictable faceplate for your cell phone or PDA, consider needle-point slip covers.

Speaking of wireless communication, have you been throwing away all your old cell phones or pagers? Shame on you. You can simply download holiday songs from the Internet on each phone/pager and place them throughout your house. For an added dose of holiday cheer, set up the devices to forward to one another. If you don't answer, as each device rings (plays the tune) it forwards the call and the next device plays its tune. No more silent nights — soon your house will be jingle-bell rockin'.

With these festive ideas, anyone can take the old and ordinary and turn it into a jolly display of seasonal cheer. Have some telecom holiday hints of your own that you would like to share? Let us know.

Briere is CEO and Gage is vice president of TeleChoice, a market strategy consultancy for the telecommunications industry. They can be reached at telecomcatalyst@telechoice.com.

For the gift giver, take the housings from your old PCs — take the guts out — and then put presents inside.

The box that

Proper configuration and making sure false alarms don't overwhelm help desks are key considerations when deploying personal firewalls.

CRITICAL WOW

BY JEFFREY FRITZ, NETWORK WORLD GLOBAL TEST ALLIANCE

Professional firewalls are essential for protecting enterprise networks, but because they are expensive and complex to administer, they are rarely found on small office/home office or residential networks. Dial-up connections do not make the cost or trouble worthwhile to residential users.

The arrival of always-on broadband services has radically changed the security stakes. Hackers love fast, always-on Internet connections such as DSL and cable modem because it is easier for them to find and probe PCs at homes or in the SOHO.

This has led residential users to come face to face with many of the same vulnerabilities that enterprise networks have encountered for years. Fortunately for these users, reasonably priced personal firewalls have come just in the nick of time.

Hardware vs. software

Personal firewalls come in one of two types: software-based and hardware-based. Each has its advantages and disadvantages. Software-based personal firewalls such as Zone Labs' ZoneAlarm Pro and Symantec's Norton Personal Firewall cost about \$50 to \$70. They are easy to obtain from local retailers or online stores.

Software-based firewalls can be resource-intensive, slowing other applications running on the same PC. They also may require the PC to be on 24-7.

Hardware-based firewalls do not slow the PC because they are physically separate devices. They tend to process packets faster and do not require a PC to be powered on to protect the network. They also can be relatively inexpensive. Buy.com sells the





NetGear RT311 Internet Gateway Router for less than \$100.

So given the choice, which personal firewall is best for you?

If you own a single PC or are on a limited budget, software firewalls carry a distinct advantage. If you have a SOHO or residential network with two or more PCs and want the firewall continuously running, a hardware firewall makes sense. Either way, the firewalls function in a similar fashion.

Double-edged sword

Personal firewalls can be a lifesaver. Properly installed and configured, they can protect your PCs, your network and, if you're connected to an enterprise network, even your corporate network. But an incorrectly configured and installed firewall can pass on harmful packets to your network.

Personal firewalls also tend to give users a false sense of security. Like the dead bolt on your door that cannot keep out a determined burglar, a crafty hacker can penetrate your firewall using Trojan horse or zombie programs creating a back door to the firewall. These programs generate what appears as normal traffic to your firewall, while malicious packets pass through, performing acts such as transmitting your address book information or damaging files on your hard drive.

Personal firewall users are often at a disadvantage because some products do not provide easily understood configuration information. Many firewalls provide the user with Web content filtering, activity reporting and e-mail alerts for security incidents. Sometimes the options to set up these

features are placed in an advanced menu hidden deep within the firewall application or management interface.

If a user doesn't carefully read the documentation or see the advanced option setup box, he might fail to provide his e-mail address or specify the name of his outgoing SMTP mail server. In either case, this results in a failure to receive messages when the firewall sees what it considers to be inappropriate activity.

Even if properly configured, firewalls are not foolproof. This is especially true given the morphing nature of many new viruses and Trojans. Sadly, there are often no guidelines for determining whether suspicious activity is really an issue or simply a false alarm. Instead it is left to the user to determine whether the suspicious activity is really malicious — not always an easy proposition. The firewall might completely ignore a rogue application that a hacker placed on a local PC believing it to be normal user activity, or alarm the user with an alert that really is an appropriate activity such as a peer-to-peer file transfer.

An understanding of how firewalls work and how to configure them is essential to their proper use. Otherwise a user who sees what appears to be an attack simply vents his anxiety on the network security staff, often offering no useful information.

The essentials needed to get assistance from any ISP or enterprise security staff are to:

- Provide your logs that indicate the port scan.
- Provide the IP addresses that appear to be scanning or otherwise attacking your machine or network.

The 'boy who cried wolf' scenario

Often, on seeing what is interpreted to be a security breach, a user fires off an angry e-mail to the help desk. Every complaint the network security staff receives sets in motion a series of time-consuming and involved steps. Reports must be verified; the offending machines must be checked and perhaps taken offline. There also needs to be a response to the end user. The more complaints, the more the security staff has to handle, which taxes its resources.

Users can also become overwhelmed. If an incorrectly configured firewall generates complaints often enough, users may stop paying attention to them or, worse, completely disable them.

Finally, despite the prevalence of false alarms, it is important that network security managers take all complaints seriously. Given the morphing viruses and Trojans on the Internet these days and the inherent weakness of intrusion alarm software to detect morphed viruses, user complaints can be the best early warning system.

The user may cry "wolf," but let's be sure that when there really is a wolf we come to the user's aid and protect our networks at the same time.

Fritz is the director of networking for West Virginia University and has directed the University's Advanced Network Applications Lab since 1988. He can be reached at jfritz@wvu.edu.

Global Test Alliance

■ Fritz is also a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.

Internet protection services

the good & the ugly

Internet protection services are a funnel between users and ISPs or enterprise networks. Like personal firewalls, Internet protection services run the gamut from good to poor. The worst services border on being spammers. They send out complaints helter-skelter to ISPs and enterprise networks whenever they receive a complaint or a firewall log.

The better services, such as Euclidian Consulting's DShield Fightback, exercise care with the firewall logs that are sent to them.

DShield analyzes log reports and selects a number of strong cases, which it then forwards to the ISP from which the attack originated. The fact that DShield and similar services offer to analyze reports means that they take the responsibility to separate the wheat (real attacks) from the chaff (someone downloaded a music track from the host PC).

To learn how they analyzed firewall reports, we asked DShield, "If I use your service, you indicate that you will analyze my firewall reports. What kind of analysis do you perform? What steps, if any, does your service take to make sure that my reports are real intrusions?"

DShield's Johannes Ullrich responded: "While we do not edit data that goes into the database, we apply some careful filters before forwarding any reports to ISPs. Only attacks against known vulnerable ports are forwarded, and only if the same IP has been spotted attacking multiple targets. Replies from the ISP that may indicate a problem will be forwarded to you."

"There are some common problems we ran into in the past that caused false alarms. Some ISPs started using load-balancing servers that sent out probes on Port 53 to measure the 'distance' to a client. For these special cases we keep a 'do not complain' list of ISPs."

— Jeffrey Fritz

Firewall resources

The following represents a sample of personal firewall products and services available to small office/home office or residential users.

Response organizations:

CERT Coordination Center (CERT/CC)

www.cert.org

DShield Fightback

www.dshield.org

Software-based personal firewalls

ZoneAlarm Pro by Zone Labs

www.zonelabs.com

Norton Personal Firewall 2002 by Symantec

www.symantec.com/sabu/nis/npf/

McAfee Firewall

www.mcafee.com/myapps/firewall/ov_firewall.asp

Hardware-based firewalls

NetGear Internet Gateway Routers

www.netgear.com/routers_main.aspLinksys

www.lnksys.com/products/



International connections

■ BY BRYANT DUNETZ

If you're looking for a circuit to connect a U.S. office to a site overseas, there's never been a better time to buy. While you might pay \$1,500 per month for a T-1 line spanning the 250 miles between New York and Washington, D.C., you'd only need to pay \$1,000 per month for a portion of a T-1 that crossed the Atlantic Ocean to link New York and London.

Overcapacity has dramatically reduced the cost of long-haul transoceanic bandwidth — that is, fiber encapsulated in a cable at the bottom of the ocean. By some estimates there are more than 250,000 miles of copper and fiber cables under the seas to connect the world's continents.

Capacity of trans-Atlantic telephone cables is nearly 12.5 times greater than it was in 1998, according to the Federal Communications Commission. And in the next few years, growth of bandwidth in the Asia Pacific region will be five times greater than growth in the Atlantic region.

This bandwidth glut has created a shopper's holiday. International telecom publication *TeleGeography* has tracked a steady, significant decline in trans-Atlantic prices for STM-1s. The equivalent of three DS-3s would have cost \$9 million for a 25-year lease signed in 1998. But now that same STM-1 lease would only cost \$1.5 million, according to the research firm that publishes its namesake report.

There are bargains to be found when comparing them with years past in the Pacific too, where connections generally cost twice the price of Atlantic connections. A 25-year lease for an STM-1 between Los Angeles and Tokyo now goes for as low as \$2.5 million. With prices like these, it's probably worth your time to renegotiate any existing contracts for transoceanic service.

International carriers

COUNTRY	CARRIER
Australia	Telstra
Canada	AT&T Canada
Canada	Sprint Canada
France	France Telecom
Germany	Deutsche Telekom
Italy	Telecom Italia
Japan	NTT
Netherlands	KPN
New Zealand	Telecom New Zealand
Singapore	SingTel
Spain	Telefonica
Sweden	Telia
Switzerland	Swisscom
United Kingdom	British Telecom
Worldwide	AT&T
Worldwide	Equant
Worldwide	FLAG
Worldwide	Global Crossing
Worldwide	Sprint
Worldwide	WorldCom

Buying bandwidth

Pricing and ordering international telecom service is similar to buying service in this country. A typical overseas private line requires several carriers and contains a few different pricing elements. For example, a T-1 from New York to London might include a local loop in New York from Verizon, a long-haul oceanic segment between landing points from a carrier such as AT&T, Sprint or WorldCom, and a local loop in London from British Telecom. (See the chart to the right for pricing for this service.)

Although there are great deals to be had, you'll also find wide discrepancies in transoceanic pricing from one carrier to another. When we obtained quotes for the same level of bandwidth from a variety of global carriers, the numbers varied significantly. (See the chart to the right for sample prices for long-haul POP-to-POP service, which doesn't include local access charges.)

The market for buying international service has expanded far beyond AT&T, Sprint and

WorldCom. Several foreign carriers offer complete end-to-end connectivity. But while there are numerous resellers, only a handful of companies operate their own native undersea cable backbone, including AT&T, Equant, Flag, Global Crossing, Sprint and WorldCom.

However, several players and international alliances have crumbled in the downturn. Last year Deutsche Telecom and Sprint disbanded their Global One joint venture, and AT&T and British Telecom announced plans in October to dissolve their three-year joint venture in Concert. What's more, 360Networks, Project Oxygen and Viatel declared bankruptcy.

Such churn underscores the need to shop carefully for transoceanic connections. Choosing the lowest-cost carrier often carries an associated risk of service outages, lackluster technical support or even abrupt termination of service. There's some comfort in knowing that you can sleep at nights without worrying about the network, and naturally you pay a premium for that service guarantee. However, other network executives have landed a low-cost flexible arrangement with a carrier and are quite satisfied.

You won't go wrong with established players such as AT&T, WorldCom, Sprint, British Telecom, Deutsche Telecom, France Telecom and Telia, just to name a few. See the chart at left for a list of carriers offering long-haul service that spans the globe.

Look around and you should be able to cut an attractive deal for 56K bit/sec up through OC-X bandwidths.

But act now, because it's difficult to know how low the carriers will go or how long the buyer's market will last.

Dunetz is president of Telco Exchange, an online marketplace for high-bandwidth communications services. He can be reached at info@telco_exchange.com.

Across the pond

A sampling of typical pricing for a T-1 from New York to London shows that the long-haul portion of international service could cost even less than a local loop. Prices are based on a two-year contract and don't include negotiated service-level agreements or managed services.

T-1 service	Installation fee	Monthly recurring charge
New York access loop	\$650	\$1,500
Long haul	\$0	\$1,000
London access loop	\$4,100	\$750
Total	\$4,750	\$3,250

Carrier 1	\$1,000
Carrier 2	\$1,150
Carrier 3	\$2,700
Carrier 4	\$7,800
Carrier 5	\$9,600

* Global carriers would only provide price quotes if we agreed not to identify them by name.



More online!

- Atlantic crossing: How submarines lay undersea links.
- Telecom Tracker: Pricing for several types of service.

DocFinder: 7421

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10201-191206

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- 3-Yr 4 Hour Parts⁵¹ 7X24 Replacement Service; add \$79

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 - 3-Yr Next Business Day Parts Replacement Service⁵²

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Recommended upgrade:

- 3-Yr 4 Hour Parts⁵¹ 7X24 Replacement Service; add \$129

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- 7X24 Phone Tech Support

\$599 QuickLoan: **\$16/mo.**, 48 mos.¹¹
 **E-VALUE Code:**
10201-291205

Recommended upgrades:

- 3-Yr Next Business Day On-Site Service⁴⁹; add \$149
- Intel® Pentium® III Processor at 1.0GHz; add \$199

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- 2 Embedded NICs • One Gigabit and One Intel 10/100
- 3-Yr Next Business Day On-Site Service³
- 7X24 Phone Tech Support

\$1799 QuickLoan: **\$48/mo.**, 48 mos.¹¹
 **E-VALUE Code:**
10201-291217

Recommended upgrades:

- Redundant Power Supplies; add \$229
- Embedded Dual-Channel ROMB; add \$299



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Taking precautions to produce pristine testing

People working in the Assay Office during the California Gold Rush were obliged by law to wash and dry the scale, avoid breezes by making sure the windows were closed and verify the scale's accuracy with an object of known weight

before each use. Today, McDonald's restaurants have similarly stringent rules for weighing precooked Quarter Pounders.

In our labs, we're just as careful about weighing things. Instead of gold dust and hamburgers, we balance network hardware

and software on the scales. We have standards for creating a level playing field when testing products head to head.

When we test with Windows NT or 2000, we make sure background processes, disk utilization and file position, network configurations and even monitor resolutions are the same across all our tests.

Services running in the background are a big factor in configuring a fair contest environment. Take Microsoft's Index Server process (cisvc.exe), which prepares Web-accessible indexes for use by a search engine. Because its periodic background examination of files can be momentarily disk- and CPU-intensive, Index Server can profoundly influence the performance of a product we're trying to test.

Other Windows services offenders are the Distributed Transaction Coordinator, World Wide Web Publishing Service, File Replication Service, Network News Transfer Protocol, SMTP, Network Dynamic Data Exchange, DNS, Dynamic Host Configuration Protocol and the Windows Media services. We make sure all Windows services — if the product we're reviewing doesn't need them — are turned off.

A protocol analyzer trace confirms each test occurs in as quiet an environment as possible.

When we're testing multiple products on the same computer, we reinstall and reconfigure Windows for each product. Just uninstalling one product before installing the next isn't enough. Most uninstall procedures leave at least some residue in the computer in the form of obsolete hidden files, registry entries or system configuration changes. The residue might cause the next product's files to install in different locations on the disk, which can sometimes affect performance. Moreover, if a product sets up a new Windows service or replaces some of Windows' system files, the uninstall procedure often leaves these components on the computer.

If we run tests on multiple computers, we use duplicate machines for data storage, business logic and presentation logic or software agents.

If one product requires a monitor resolution of at least 800 by 600 and another requires at least 1,024 by 768, we configure Windows to use the higher resolution for all tests. Video drivers can consume considerable CPU time, especially at higher resolutions.

Creating a fair testing environment on Unix or Linux presents basically the same challenges as on Windows, but the terminology is different. We remove entries from .RC files that start unnecessary background processes (such as daemons) and reboot.

Following these guidelines can help ensure your testing is always fair and accurate.

Nance, a software developer and consultant for 29 years, is the author of Introduction to Networking, 4th Edition and Client/Server LAN Programming. He can be reached at barryn@erols.com.

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About the presenter:

Dennis Drogseth is a director at Enterprise Management Associates, a leading analyst and market research firm focused on management software and services.

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Wireless LAN security

Cisco LEAPs past the competition

■ BY STEVE JANSS

In the past year, you've no doubt read articles warning about the security holes in wireless networks and documenting the flaws in Wired Equivalent Privacy, the standard method for securing 802.11b wireless LANs. We decided it's time to stop crying wolf and time to test solutions to the problem of 802.11b security.

The IEEE 802.11b Task Group 1 is working on a new standard that provides authentication and encryption for secure wireless networking. Unfortunately, the new standard is still in the draft stages. In the meantime, proprietary products that plug the holes in 802.11b security may be your best bet.

We tested the following products for their security, manageability and suitability for enterprise use: 3Com's Access Point 6000, Avaya's Access Server 1, Cisco's Aironet 350 and ACS, and Colubris' CN 1000. The Blue Ribbon Award goes to Cisco for its superb technical accomplishments and the depth of its systems' capabilities. Cisco beat Avaya in terms of features and management/administration, even though Avaya's outstanding documentation is a compelling, and regrettably unusual, feature.

Numerous 802.11b products claim to provide "extra" encryption. However, in most cases that "extra" encryption is merely the use of a 128-bit static key. Because WEP only specifies a 40-bit key, these companies can get away with claiming that their encryption is "extra." However, it doesn't matter whether you're using WEP in the original 40-bit mode or one of several 128-bit key extensions, because the WEP algorithm is flawed.

Fortunately, our entrants aren't out to fool anyone. All four have delivered viable authentication and encryption mechanisms that go beyond WEP and plug the security holes in the original 802.11b standard. We attempted to hack the systems in their proprietary security modes. Although none of these hacks were successful, keep in mind that the tools used were designed to penetrate WEP, not Extensible Authentication Protocol (EAP), Lightweight EAP (LEAP) or a properly configured VPN. It's safe to say that when properly configured, all four of these entries provide proven security for your wireless networks, at least for now.

This review includes extensive details about Cisco's proprietary technologies and installation routine. Because the details about the other products are similar, only significant or unique differences are noted.

Cisco — old standby/new leader

Cisco's wireless access point is a sleek, dark-gray box with two flip antennas. Instead of a power jack, Cisco uses a "power injector" that sits between your LAN jack and the access point. Most people will want to configure the unit via their browser, but a serial port is available if you'd prefer to use a serial communications program such as HyperTerminal or Telnet. We recommend a serial port because the browser interface can be somewhat buggy, with missing pages and other dead ends.

Installing Cisco's Aironet 350 Wireless LAN Adapter on a Sony VAIO was quick and easy. Windows XP Home Edition found the card and installed the correct driver in 10 seconds. The status and activity lights on top of the antenna indicated that it was installed and functioning correctly. All that was left for us to do was configure the card to work with Cisco's wireless network equipment.

We had to dig through Cisco's documentation, which is Cisco's one sore point. Both the wireless access point and the wireless network interface cards (NIC) have three guides each, for hardware, software and a quick start. That's six documents and 650 pages. 802.11b is just not that complicated. About 120 pages is the upper limit for a product of this complexity, and a document this size should clearly, concisely and effectively communicate its installation, use and troubleshooting.

During installation, you'll be asked which level of security you wish to use: none, EAP or LEAP. None is just that — none.

Although "None" uses 128-bit fixed WEP keys, it's easily cracked. Unless you're just surfing the Internet for Christmas dinner recipes, you probably won't want to trust your sensitive data to WEP.

EAP was developed to support multiple authentication mechanisms. Instead of selecting a specific authentication mechanism at the link control phase, it waits until the authentication phase. This allows the authenticator to request more information before

Net Results

4.05 RATING

Aironet 350 and ACS

Company: Cisco, (800) 553-6387, www.cisco.com
Price: Varies. **Pros:** Outstanding enterprise capability; excellent security when used with Cisco's Access Control Server. **Cons:** Poorly written, lengthy documentation.

3.75 RATING

Access Server 1

Company: Avaya, (866) 462-8292, www.avaya.com
Price: Varies. **Pros:** Very good industrial-strength product. **Cons:** No Windows XP support.

3.5 RATING

Access Point 6000

Company: 3Com, (408) 326-5000, www.3com.com
Price: \$477 plus \$148 per client. **Pros:** Dynamic Security reduces 128-bit administration overhead. **Cons:** Buggy installation; unproven technology; no Windows XP support.

3.3 RATING

CN1000

Company: Colubris, (866) 241-8324, www.colubris.com
Price: \$795 plus \$125 per client card. **Pros:** Good office WLAN; built-in VPN; NAT router. **Cons:** Buggy; no Windows XP support.

What's the score?

	Aironet 350 and ACS	Access Server 1	Access Point 6000	CN1000
Features 15%	5	4	3	4
Security 25%	5	4	4	4
Ease of use/setup 15%	3	3	1	2
Mgmt./ Administration 20%	5	4	4	3
Documentation 15%	2	4	5	3
Price value 10%	3	3	3	3
TOTAL SCORE	4.05	3.75	3.5	3.3

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. ■ **Scoring key:** 5: Exceptional showing in this category. Defines the standard of excellence. 4: Very good showing. Although there may be room for improvement, this product was much better than the average. 3: Average showing in this category. Product was neither especially good nor exceptionally bad. 2: Below average. Lacked some features or lower performance than other products or than expected. 1: Consistently subpar, or lacking features being reviewed.

determining the specific mechanism, and provides a means for an external server to provide the authentication mechanisms, while EAP merely acts as a pass-through. EAP is a complex standard, and its complexity means it isn't widely deployed.

LEAP is Cisco's proprietary lightweight implementation of EAP. It ensures mutual authentication using private and public keys (shared secrets), solving man-in-the-middle attacks, sniffing attacks and active attacks.

Cisco's products are fully 802.11b compatible, allowing you to mix secure and nonsecure connections on the same access point. If you want maximum security, you can set up the access point to enforce LEAP-only, but most network administrators will configure it to use both LEAP and 128-bit static WEP connections. Although the non-LEAP devices and their datastreams are vulnerable, the LEAP-enabled datastreams are secure.

LEAP and EAP require a Remote Authentication Dial-In User Service (RADIUS) server. RADIUS enables centralized management of users, and has grown beyond the dial-up stage. By itself RADIUS doesn't offer encryption; it's for authenticating users. Cisco's version is its Access Control Server 2000 Version 2.6. You can configure the access point and cards to use either LEAP Draft 8 or Draft 10, giving you flexibility in environments with older Cisco cards. You can also configure Access Control Server to perform LEAP and media access control authentication. When combined with the user's logon information and periodic reauthentication, Cisco's LEAP provides the iron-clad wireless security you need to protect your corporate data, preventing hackers from accessing your wireless LAN, even with a stolen notebook.

You'll configure the wireless NIC through Cisco's Aironet Client Utility, which allows you to run six commands, change numerous preferences, and run two diagnostics. The Linktest diagnostic is used to assess the performance of the radio frequency link in various locations (helping to eliminate dead spots), while the site survey diagnostic is used to measure signal strength and quality, four times per second (helping to determine the best placement for your wireless access points).

In two tests — one taken about 10 feet from the wireless access point in unobstructed space, and the other about 60 feet from the wireless access point through several walls — Cisco's throughput of 11M bit/sec was extremely good for being on a 2.4-GHz portable phone less than 2 feet from the wireless network interface card (NIC).

Configuration was fairly straightforward. Although we were able to crack the 128-bit static WEP in less than 18 hours, when we switched to an LEAP-enabled RADIUS server 48 hours later, network security was still intact.

Alternatives to 802.11b

Bluetooth and HomeRF share 802.11b's 2.4-GHz band. Nevertheless, Bluetooth is limited to a 10-meter range, while HomeRF's proprietary networking specification targets the home market, and is not compatible with Ethernet, the corporate networking standard. 802.11b's real competitor is the products that will arise from the IEEE's mid-November tentative approval of the 802.11g standard. This 54M bit/sec standard is as fast as 802.11a but interoperates with 802.11b in the 2.4-GHz band. It's the obvious follow-on to 802.11b. Just as 10Base-T was for 10Base-T. Expect to see 802.11g products in the fall of 2002.

—Steve Janss

Colubris — cool name, cool product

The Canadian company Colubris relies on innovation to make its mark, using embedded VPN technology to enhance 802.11b security. Colubris largely succeeds with its CN1000 Wireless LAN Router (model CN1050 is the current standard), targeted at midsize to large businesses.

Colubris has an intriguing design. Instead of using a different set of wireless electronics for its access point, the top of the CN1000 is a PC card slot into which you slide one of its wireless NICs. Should you need to upgrade your wireless network, instead of having to purchase a new access point, you simply buy an additional NIC.

Setup failed under Windows XP, until updated instructions were discovered on the Web site. If you're using proprietary client management software, here's something you may wish to keep handy: Go to network connections, properties, select the wireless networks tab, and deselect the "use Windows to configure my wireless network settings" box. If you don't, it may later interfere with the proprietary card management software and you may lose some settings.

The CN1000 includes a built-in network address translation firewall and the ability to act as a "router" (gateway, actually) for a hard-wired subnet. However, support for security is the most important feature. The product fully supports VPN pass-through, but the CN1000 is a VPN server. Access control lists can be managed directly on the access point, providing good flexibility for most corporate networks.

Like Cisco's equipment, the CN1000 comes with a real-time link status, a site survey tool and a monitoring tool that helps system administrators plan for the best layout and coverage of wireless LANs. The Web-based management tool gets a Secure Sockets Layer-enabled link (unlike Cisco's), allowing remote administrators to securely manage its VPN capabilities through any SSL browser.

3Com — New exterior, unrefined interior

3Com's design looks the best, from its two-position wireless access point with the flip antenna to the retractable X-Jack antenna on its wireless NIC. X-Jack lets you store the antenna in the wireless NIC when not in use, keeping it in your laptop during transportation. Both were a bit overengineered, though. Because the wireless NIC is easily removed from the PC card slot during transportation, that is preferable to having to fiddle with the retractable antenna. If you're at all bumpy with your equipment, you're better off removing the card before moving your laptop anyway.

Installing 3Com's wireless NIC in XP was a dismal failure. First, an error message said the card failed to properly install, and suggested the use of XP's trouble-shooter, which directed me to uninstall the card, then use the "search new hardware" wizard. The result was the blue screen of death.

When downloading the updated driver from 3Com's Web site, the dreaded "we'll contact you within one to two business days regarding your request" message came up on the screen. Five business days later we still hadn't heard from 3Com.

Rather than trashing a laptop trying to make something work that just wasn't happening, we swapped roles, using the laptop as the hacker machine and the Pentium III workstation as a "client" by using my PCI to PCMCIA adapter card. The results were better, although 3Com took a big hit in "ease of use/setup" category. There's little excuse for not having a valid XP driver. At press time, the drivers were still not available.

To its credit, 3Com's Dynamic Security Link technology is similar to Cisco's LEAP. One benefit of Dynamic Security Link is that it increases the number of simultaneous users from 65 to 255. Furthermore, you don't have to manually enter the 128-bit keys when using Dynamic Security Link — it automatically generates new keys and distributes them to the client each session. While this is great for

encryption, you'll still need to provide for message- and user-authentication for iron-clad security.

It took 60 seconds to set up 3Com's Access Point 6000.

However, implementing the full range of security took much longer, not only for the access point but also for each client. 3Com's browser-based Configuration Management System was better than the one offered by Colubris, and its HTML-based documentation was complete and well organized. In all, 3Com's product has some neat technology, but the entire package needs some tweaking, especially in terms of setup.

Avaya — Mirror Image, with a twist

Avaya's wireless NICs looked identical to those from Colubris, and Avaya confirmed that they were the same Orinoco cards. That's about where the

similarities ended, as Avaya's Access Server 1 is a slick tool for managing corporate-level wireless security. It includes RADIUS software that runs on any workstation plugged into the hard-wired LAN, and employs automatic key generation and distribution.

Avaya's documentation was very good, with plenty of room set aside in the form of tables to record the system parameters administrators in large corporate environments should never commit to memory.

The AS Manager provides the full range of management and diagnostic utilities you'd expect for a top-of-the-line corporate offering, along with the ability to manage most functions through SNMP/Telnet.

Wrap-up

VPNs and RADIUS servers are proven technologies that properly implement a variety of key exchange systems, and Cisco's LEAP + Access Control Server combination is a winning solution for midsize to large corporations. I would trust my corporate data to them before I'd go with an unproven technology, even if it significantly reduces administrative overhead.

One of these days someone will figure out how to distribute secret keys to the access point and the clients in a manner that's secure yet fully automatic. In the meantime, if you're worried about security, make the investment and use proven security methods.

Cisco's Aironet 350 and Access Control Server 4.6 combination was the most mature product, working seamlessly with all versions of Windows we tested (NT 4.0, 2000 Pro and XP Home), while offering superb management tools. As a result, Cisco edged out Avaya's Access Server 1 to win our Blue Ribbon Award.

Janss is the president of Jansys Information Systems, a consulting firm specializing in IS technologies for small businesses. He can be reached at bizcom@jansys.com.



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Maintaining morale

Making your staff feel challenged and valued doesn't have to cost much.

■ BY SUSAN BREIDENBACH

The economic downturn has eased retention woes, but IT executives now have to worry about maintaining morale.

"When you have low turnover, your people may leave *on* the job," says Kathy Fleenor, manager of emerging digital technologies for Eastman Chemical. In this case, employees may still show up but they've mentally checked out of the job. She should know. Her company is based in Kingsport, Tenn., where employees don't have a lot of job choices even in boom times.

So how do you keep morale up when the economy is making people feel less valued and monetary rewards may not be possible? The good news is that studies consistently indicate that money isn't the top job-satisfaction factor. In a survey by Career Systems International and The Jordan Evans Group, salary ranked a distant fourth behind exciting and challenging work; career growth, learning and development; and working with great people.

"Historically, engineers haven't been motivated primarily by monetary incentives," says Greg Mack, vice president of IT for Syntek Technologies, a professional-services firm in Arlington, Va. "They want to be in a challenging environment where they feel they are making valuable contributions."

If money isn't an option, establish that upfront and ask what else people want. You may have to say no to the first few requests, but if you push through this uncomfortable beginning, the employee will get to lots of things you can address.

"Probably three out of five requests are things that fall within your sphere of influence," says Beverly Kaye, founder of Career Systems International in Scranton, Pa., and co-author of *Love 'Em or Lose 'Em: Getting Good People to Stay*.

Fleenor's group at Eastman Chemical kept a few team members happy by letting them make lateral moves into new jobs with more interesting work.

Being asked makes people feel cared about and important. Kaye recommends keeping a file of each employee's answers, and reviewing them once a month to see what you've done to meet individual needs.

Technical people rate challenge and career-development opportunities particularly high, so efforts in this direction should reap the most morale dividends. Let them go to local conferences, get them tools and training, and encourage mentoring and continuing education.

"They see you are letting them take some of the organization's time to get better at what they do, which tells them you value them," Mack says.

Despite the current slump, labor statistics indicate there is still a shortage of skilled IT people. This means tremendous opportunities for your team, so helping members identify and pursue growth paths can go a long way toward maintaining good morale, says



Kathy Fleenor engages employees by providing interesting assignments and flexible work arrangements.

Frank Bernhard of Omni Consulting Group. And while maintenance-mode IT isn't very rewarding, your staff can use the lull to improve internal processes. This can have a substantial impact on operations without costing much.

"IT has become such an important arm of business that IT teams must continue to build applications," Bernhard adds. "Customer and software analytics is a big area. You have all this infrastructure, and now you need to make it perform."

Let's talk

Above all, take time to listen. "That's very important in these tougher times," says John Challenger, CEO of consultancy Challenger, Gray and Christmas. "Companies need to find out what their IT people are concerned about."

Sometimes a quality-of-life issue such as spending more time with family is foremost. Eastman Chemical makes it easy for employees to work at home, paying for broadband access and loaning computer equipment.

It's easier to get dialogues going these days because employees are more likely to come in, sit down and talk. "In part, they are seeking reassurance that they have a job and that you value them," Mack says.

A lot of employee wishes are relatively easy and inexpensive to accommodate,

such as flex time and telecommuting opportunities, or giving an extra day off because of a special need. Other options might include achievement awards, and sending flowers or some other token of appreciation to the spouses of staff members who have been putting in a lot of overtime. Fleenor finds that taking time off once a month for a group outing — whether recreational or work-related — helps to energize her staff.

What's more, it's important to give people a sense of what they're contributing to the company's mission, not just to the IT effort. At year-end, Fleenor's team members must evaluate themselves along these lines.

"They visit the customers, and come up with ways for the salespeople to do customer solutions selling, rather than just sell products," Fleenor says. "These days, there are ways to improve customer relations with e-business initiatives." Her people score more evaluation points if something they came up with is customer-focused, or gets applied more broadly than its initial intent.

Finally, foster a sense of community and teamwork. "Today, a lot of companies are looking for ways to rally people around a larger purpose," Challenger says. "This might include participating in relief efforts, such as volunteering as a group, or donating some of the holiday party funds."

"You can build morale by bringing people together, not just by rewarding them individually," he says.

Breidenbach is a freelance technology journalist and consultant. She can be reached at sbreidenbach@usa.net.



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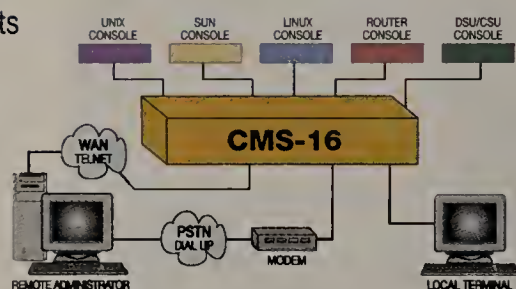
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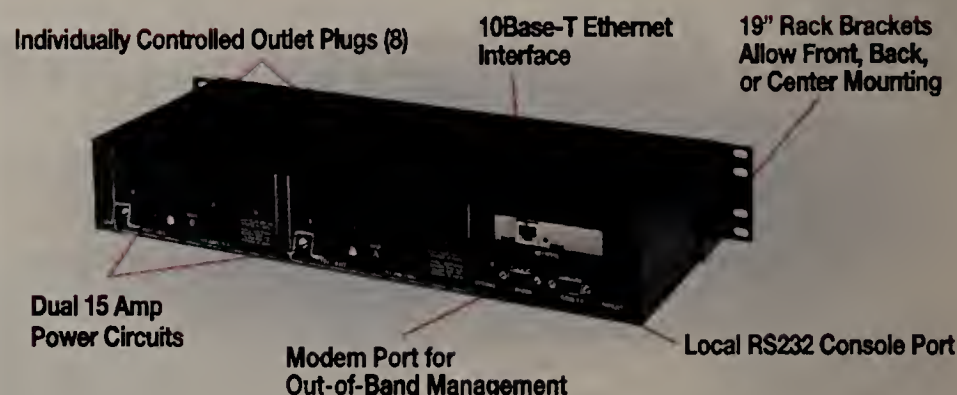


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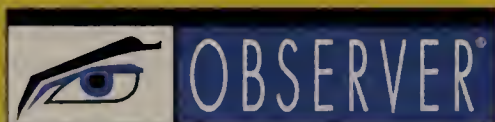


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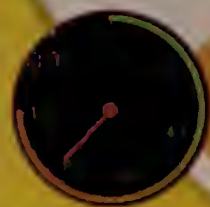
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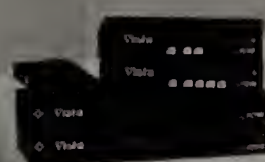
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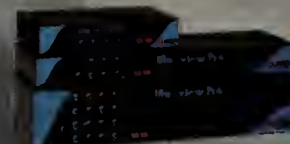
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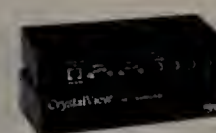
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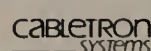
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Database Administrators needed to install, design, maintain, administer, troubleshoot & create Oracle databases. Apply to Global Consultants, Inc., 601 Jefferson Rd, Parsippany, NJ 07054.

Computer Systems Engineer needed for Miami Architecture co. to analyze data requirement and plan data processing system for projected workloads. Min req. 4 yrs exp. Send resumes to Architectural Design Consortium, Inc. P.O. Box 370546 Miami, Florida 33137.

Bahwan Cybernet Technologies, Inc. has several openings available for Prog/Sys Analysts, Soft. Engrs/Consultants, Proj Mgrs, DBAs, and Sys Admins to design/develop applications using skill sets such as: C, C++, VB, VC++, Java, EJB, Oracle, Informix, Sybase, UML, Internet, telephony and wireless technologies, Windows/UNIX admin. Require BS/MS or for. equiv in Comp Sci/Engg (any branch)/Sci/Math/Bus or related field. Combination of edu and exp will be accepted. Highly competitive salaries & benefits. Travel/reloc required. Resumes to, Suite 215, 209 West Central Street, Natick, MA 01760.

Applications Engineer. 8a-5p. 40 hrs/wk. Design, develop, implement & coordinate integration of wireless applications, systems & equipment using computer aided design, computer graphics, mechatronics, digital control systems, networking, C++, Java, JSP/Servlets, SQL, XML, WAP/WML, HTML, HTML and SMS. Master of Science or equivalent degree in Comp, Electrical, Electronics, Mech'l or related field of Engg. Resume to: HR Dir., Air2Web, Inc., Promenade II, 1230 Peachtree St., 12th Fl., Atlanta, GA 30309.

Bioinformatic Software Validation Specialist, Bethesda, MD. Test bioinformatics software used for sequence analysis & gene expression by bio-medical researchers. Provide scientific support to software developers, tech. support teams & tech. writing teams to ensure software & tech. docs are scientifically valid & effectively meet the needs of the research community. REQD: B.S. in Biology & 2 yrs exp. in seq. analysis & gene expression res. using biotechnology. M-F, 40hrs/wk. Send resume to I. Sytnikov, HR, REF. # 502, InforMax, Inc., 7600 Wisconsin Avenue, 11th Floor, Bethesda, MD 20814.

Several FT positions open for experienced Project Managers, Prog/Sys Analysts, S/W Engineers and DBAs skilled in some of the following: Java, HTML, COM, IIS, ASP; Oracle, Developer 2000, PL/SQL, Power Builder; VB, SQL, Sybase; Windows NT/UNIX admin, web/wireless technologies; datawarehouseing; database admin etc. Require a BS/MS with conc. in CS/Engg (any branch)/Math, Business or related field. Highly competitive salary. Traveling involved to client sites. Send resume to: Cosyne Enterprises, Inc. 3235 Satellite Blvd., Bldg. 400, Suite 300, Duluth, GA 30096.

Computers/Systems Analysts
CommVault Systems, Inc. seeks Systems Analysts. Resp for analyzing user requirements, procedures & problems to improve systems. Req: Bachelor's degree in Elec Eng'g, Comp Sci, Math, or related field & 2 yrs exp as sys anal, software or hardware eng'gr. Must have exp w/ Windows NT & SQL, managing computer networks & standalone computers, test environments & implementation. Res to thoffman@commvault.com. EOE.

Computer Programmers. B.S. in Computer Science. 2 yrs. exp. developing, applying, and maintaining heavily used intranet sites; and 2 yrs. exp. with Visual Basic 6.0 (Active X), HTML, CSS, Java Script, VBScript, Transact-SQL, Java-Applets, C, COBOL, and Perl, IIS 4.0/ASP, Microsoft Transaction Server (MTS), Index Server, CQM, Windows DNA Architecture, Visual InterDev, FrontPage 98, Dream Weaver 3.01, and PhotoShop, Microsoft SQL Server 7.0, MS ACCESS, and FoxPro, Windows 95/98/NT, BackOffice, Sun Solaris UNIX, DOS, TANDEM, and GARDIAN 90. Send resume: Attn: CPPBN, PO Box 5275, New York, NY 10185-5272.

Systems Analyst needed for Miami computer sales and export co. to review computer system capabilities, workflow, and scheduling limitations. Min req. 4 yrs exp. Send resumes to TWC The Wise Computer, Inc. P.O. Box 226438 Miami, FL 33122.

Semafor Technologies has multiple openings for S/W Engineers, Prog/Sys Analysts, DBAs, Proj Mgrs and Sys Admins to design/develop/administer software applications using various development tools, languages, database/internet/wireless technologies on windows and UNIX platforms. Customize commercial business application. All positions require BS/MS or foreign equiv in Comp Sci, Math, Business, Sciences, Engg (any branch) or related field. Highly competitive salaries & benefits. Travel/relocation req. Resumes to: HR, 3300 Holcomb Bridge Rd, Ste 212, Norcross, GA 30092

Synergy America, Inc. has multiple openings available for Prog/Sys Anal, S/W Engineers, DBAs and Sys Admin to design/develop applications in some of the following: VB, VC++, SQL, Java, HTML, Oracle, Informix, Sybase, Internet and wireless technologies, Windows, UNIX. All positions require BS/MS or foreign equiv in Comp Sci, Science, Engg, Math or Business. Highly competitive salaries & benefits. Travel/relocation req. Resumes to: HR, 1565 Woodington Circle, Suite 101, Lawrenceville, GA 30044

Several computer related positions for large telecommunications consulting services company.

Send resume to: Tangel Burks, Sema, 6 Concourse Pkwy., Suite 2700, Atlanta, GA 30328.

Database Administrator for lighting manufacturer in Peachtree City, GA. Minimum four years experience designing, installing and maintaining DB2 and IMS databases on NT, AIX and OS/390 platforms, including conducting performance monitoring and tuning, system internal testing and disaster recovery planning and security administration. Send resume to Margaret Abell, Cooper Lighting, 1121 Highway 74 South, Peachtree City, GA 30269.

Programmer/Analyst, Ltd. wanted by staffing services org. in Melville, NY. Req'd Bachelor's or equivalent in Comp Sci + 3 yrs exp incl. Oracle, Cognos, SQL & Win NT. Fax resume to M. Storelli at (631) 844-7426.

TECH. SUPPORT ENGINEER - Investigate/resolve software problems for Posilion systems; interview users for data collection; handle problem recognition research, isolation; log calls and perform on-site system preparation. Req. B.S. in Engineering, related/equivalent and 1 yr. exp. in job or 1 yr. exp. as Comp./Software Eng. or related. Send resume to HR, Mosaic Software, 800 Fairway Dr., Ste. 200 Deerfield Beach, FL 33441.

SAP BUS. TECH. ALGNMT. & SECURITY CONSULTANT

Resp. for organizational alignment & security compliance in the installation, operation & management of the SAP R/3 software program utilized throughout the company. Spec. duties incl.: (i) managing & implementing the SAP organization alignment process throughout the company's facilities & within the assigned business units; (ii) analyzing & mapping the relationship between the company's departments as well as among individuals within these departments; (iii) determining the needs of individual units & devising various levels of access for employees who have access to the company's SAP R/3 software; (iv) supervising the implementation of the business technology alignment & security clearances within the company's technology units; (v) overseeing development of the security database which monitors security access to the company's software; & (vi) assisting the company's senior management in the transition process to SAP R/3 software in the U.S. & Canada. 2 yrs. exp. in the position offered or as a SAP Consultant required. Must know SAP R/3 programming language. High mobility preferred. 40 hrs/wk, 8 am - 5 pm., QT as reqd. \$90,000/yr. Qualified applicants report/submit resume to: Manager, Beaver County Team PA CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB213861.

Software Engineer (Stamford, CT) (Pharmaceutical industry) Plan, organize & direct functional system analysis; design & implement all assigned software applications; determine business requirements through interviews, observations & review of systems running on Unisys 2200 mainframes to design systems to meet user & corporate requirements; provide written procedures, specifications, instructions & training for end users; provide periodic oral & written status reports to users & top management; provide user training, guidance & support for on-site & off-site locations; monitor performance of installed systems; develop communication interfaces among all related operations to provide timely & accurate information flow; establish formal data flows within & between system operations using applications written in Cobol with interfaces to DMS1100 Database Management System & TIP1100 Transaction Interface Package. Req's: Master's degree or equivalent in Info. Sci. or Electrical Engr. (will accept as equivalent B.S. in Info. Sci. or Electrical Engr. +5 yrs. exp. in progressively responsible positions in the field) and 2 yrs exp. in the job offered or 3 yrs. exp. as a Systems Analyst. Will accept. M-F; 40 hrs/wk; 8am-5pm. Send res. to: S. Roeser, HR Dept., 1 Stamford Forum, Stamford, CT 06901.

F/T Sr. Software Application Engineer. Resp. for designing middleware architecture as well as developing & supporting production of company's middleware application systems. Create program specifications from moderate to high quality & prepare feasibility & analysis documentation working w/WindowsNT, Visual C++, MFC, C++, COM/DCOM, UML, ActiveX, QDBC, MS SQL Server, Oracle, VB, VB Script, Crystal Reports & Rational Rose. Resp. for porting applications as well as develop web-based applications & test plans. Assist w/ execution & implementation. Must have Bachelor's degree in CS, Electronic & Comm. Engin. or related field. Foreign degree equivalent accepted. Must have 4 yrs. exp. in job offered or position w/ same duties. Send resume: Vivian Irizarry, United Parcel Service, 340 Winters Ave., A-563, Mahwah, NJ 07430.

Quality Analyst, Bohemia, NY: Exercise authority in QA matters that affect product or service quality. Verify, validate & analyze production work. Audit the outside connectivity of production sites. Verify, validate & analyze product design & functionality according to documented instructions, including new building testing. Compose and/or update test scripts, test plans, work instructions, forms, & other documentation. Administer QA test websites. Upgrade & maintain third party software used by QA, including browsers, antivirus software, operating systems, file-sharing software & server management programs. Document all defects, problems or opportunities for improvement. Work with Account Management group to provide technical support. Bachelor's degree or equivalent in Information Systems or Computer Science & 2 yrs exp. in IBM PC's, Windows, & commercial automated software tools such as Winrunner & in web and/or software testing such as unit tests, integration tests & regression tests. Alternatively, the employer will accept a qualified applicant with 4 yrs exp. in the position offered or in related systems analysis position. 4 yrs exp. must include exp. in IBM PC's, Windows, & commercial automated software tools such as Winrunner & in web and/or software testing such as unit tests, integration tests & regression tests. Send resume to Karen Parente, Direct Insite, 80 Orville Dr. Bohemia, NY 11716.

Programmer-Analyst (Finance Group) - (Memphis, Tennessee) Plan, develop, test and document database driven internet based financial applications, database objects and financial/sales report formats utilizing DBMS (Database Management Systems/Internet enabled programming skills). Evaluate feasibility and cost with respect to new or modified programs. Provide technical assistance to users in making effective use of computer system capabilities and oversee installation of hardware and software. Must have Masters degree or foreign degree equivalent with major field of study in Computer Science, MIS or related field OR in lieu of Masters degree, will accept Bachelors degree with major field of study in Computer Science, MIS or related field AND 1 year of experience in database software development. Educational or work background may be obtained concurrently and must include: (i) 1 year of experience in Relational DBMS application development and maintenance; (ii) 1 year experience in SQL; (iii) 1 year experience in an Internet-enabled programming language; and (iv) 1 year experience in C/C++. Must have legal authority to work in the U.S. Send resume to: A. Malone (REF:PA), Medtronic Sofamor Danek USA, Inc., 1800 Pyramid Place, Memphis Tennessee 38132.

COMPUTER/IT DATA WAREHOUSE PROGRAMMER. Rockville, Maryland. Duties: Develop and design the corporate data warehouse. Develop a reporting module for MAMSI Business Decision Support System utilizing Oracle 8i, Developer 2 and WebDB tools. Develop applications for meta-data maintenance and synchronization with transactional database utilizing Oracle Developer 2 (Form Builder 6). Write systems documentation and train users. Coursework must include graduate classes in computer programming, computer Technology, data processing, and computer engineering. Send resumes to Mary Lou Siegle, Director Employment Programs, Mid-Atlantic Medical Services, Inc. (MAMSI), 4 Taft Court, Rockville, Maryland 20850.

SYNAPSE GROUP, INC., a leading computerized magazine marketing company, is looking to hire qualified candidates for the following positions:

SOFTWARE ENGINEER to design, develop and test various computer software systems, develop prototypes to aid in the product design process, integrate database/content serving modules, analyze, review, and alter programs to increase operating efficiency, and to monitor performance and provide technical assistance to program users. At minimum, a Bachelor's degree in Computer Science, Engineering, or its equivalent required. Sound knowledge in HTML, SQL, and ASP preferred.

INTERACTIVE VOICE RESPONSE (IVR) DEVELOPER to analyze, design and program speech enabled web portal and Interactive IVR applications. At minimum, a Bachelor's degree in Computer Science, Information Systems, Information Resources Management, or its equivalent required. Sound knowledge of natural language processing, online information retrieval, Actionscript 4.0 and 5.0, ASP, Java Script, C++, UNIX, and an ability to work in an NT environment preferred.

SENIOR JAVA DEVELOPER to make critical design decisions to help build a Java development organization. Must be able to apply distributed component design techniques to create scalable EJB components, to embed them in a J2EE application server and expose them to a JSP presentation layer through a JMS queues interface. Implement a middle-tier component architecture for an enterprise-class web application and integrate middle-tier services and back-end resources using JMS, JDBC, or other protocols. At minimum, a Bachelor's degree in Computer Science, Engineering or its equivalent plus two years of relevant experience required. Extensive knowledge and experience in developing modular applications, Java (J2EE) technologies, Oracle, SQL, and C++ preferred.

SYSTEMS QUALITY ASSURANCE (QA) ANALYST to document and perform internet application testing to insure the quality of code and functionality. Build test scripts and processes, upgrade system and correct errors to maintain system after testing. At minimum, a Bachelor's degree in Computer Science, Information Systems, Engineering or its equivalent required plus two years of QA experience. Extensive knowledge and experience in internet technologies, HTML, ASP, VBScript, NT, Loadrunner and Webload preferred. We offer a competitive compensation/benefit package and an environment where achievements are recognized & professional growth is encouraged. Qualified applicants are encouraged to mail resumes to: HR Department, Synapse Group, Inc., Four High Ridge Park, Stamford, CT 06905.

Programmer Analyst
Analyze and complete complex programming from EDP and business user requirements; design, test, implement, troubleshoot and document per client objectives. Fine-tune and optimize network database application software; provide on-site customer support and maintenance. Must have programming skills in C, Perl, Shell, CGI, HTML, and XML, with knowledge of MS-Windows, LINUX, SQLARIS and VMS operating systems. Must also have UI design and programming skills, and must have knowledge of Unix inter-process communication and networking protocols. Multiple openings available 40 hrs/wk., 9:00 a.m.-5:00 p.m. \$70,000/yr. B.Sc. in computer science or engin. or equiv. + 2 yrs. exp. in job offered or as systems analyst or software engineer. M.S. + 1 yr. exp. accepted in lieu of B.Sc. + 2 yrs. exp. Apply to: Sharper Logics, Inc., Ref. NWAT, 615 Beaver Run Rd., Ste. A, Lilburn, GA 30047.

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Programmer Analyst. Reston, VA. Provide conceptual data processing solutions to customer business problems in mission critical systems such as customer billing, customer svce., mktg. info. systems & svce., materials & financial systems. Provide technical expertise systems consultation, assistance in coding & informal leadership during the systems development, maintenance & production processes. Facilitate efforts to refine business requirements through Joint/Rapid Application Development sessions w/mgmt. & key users. Analyze, code, test & implement solutions to complex technical problems w/team members, clients & vendors. Support the application systems planning process. Conduct & participate in the review, evaluation & recommendation of software products & productivity tools. Bachelor's in Computer Science, Engineering or related field & 2 yrs. exp. in the position offered or in a related systems analysis, programming or database admin. position. 2 yrs. exp. must include exp. in Windows 2000, Windows NT, MS-DOS, SOL Server, TCP/IP, Visual InterDev, IIS4.0, Visio, C++, ASP, HTML, Java Script and VB Script. MCSE required. Resume to SoltecOne, 11480 Sunset Hills Rd., Reston, VA 20190.

Software Engineer (multiple openings) - Research, design & develop computer s/w systems for business applications; analyze s/w requirements to determine feasibility of design within time & cost constraints; formulate & design systems; develop & direct systems testing procedures; & use COBOL II, DB2, CICS & JCL. Req's. Master's in CS, Systems Analysis, CIS, Comp. Engg., Electrical Engg., Electronic Engg., Mech. Engg. or Math or its equiv. in ed. & exp. + 3 yrs. exp. in job offered or 3 yrs. exp. in a related occup. as a Programmer, Programmer Analyst, Systems Analyst, Sr. Systems Analyst, Engineer (Grade II), Software Engineer, Assistant Consultant or Software Consultant. Will accept a bachelor's degree, or a foreign equiv. degree, followed by at least 5 yrs. of progressive exp. in the specialty, in lieu of the req'd ed. & exp. \$68K/yr., 40 hrs/wk., 8:30a-5:30p, M-F. Report or send two resumes to Gwinnett, Job Order #GA 7039185, 1535 Atkinson Rd., Lawrenceville, GA 30043-5601 or the nearest Dept. of Labor Field Service Office. Must have proof of legal authority to work in the U.S.

S/Ware Dvlpmnt Co in NJ seeks to fill multiple openings for following positions:

S/Ware Engrs, Prog.Analysts, Mgmt Sys. Analysts, duties involve dsngng, dvlpg & testing using any of foll.skills: BPR, ERP & S/ware dvlpmnt involving C/S (Oracle applics, Oracle, PL/SQL, PowerBuilder, VB, Visual Foxpro) or E-commerce (Java, EJB, JSP, ASP) on Win, NT/Unix platform.

Project Directors for plg, directing, coordinating & reviewing designated projects, using any of skills above.

Req: Project Directors and S/ware Engrs: Masters or equiv in Math or Sci or Comp Sci or Engg with 3 yrs exp or Bach or equiv with 5 yrs progressive exp in job offd. Prog Analysts and Mgmt Sys. Analysts: Bach or equiv in Math or Sci or Comp Sci or Engg or Commerce or Bus Mgmt/Admin w/1yr exp in job offd. Will also accept 3 yrs college in fields listed or equiv & 18 mos exp in job duties

Respond to: HR Dept, Gebbs Software, 530 Main St., # 4, Fort Lee, NJ 07024 or E-mail to resumes@gebbs.com

F/T Web Development Program. Responsible for ground-up WEB applications focusing on data publishing, storage & manipulation. Maintain & modify pre-existing applications & provide technical & troubleshooting support. Responsible for database design, modeling & theory & algorithm development/implementation, communication protocols, translation of computer language into applications & integrated development & environments working w/ Java, Java Server Pages, Java Script, SOL/SOL server, IIS 4.0, VB, ASP, COM/DCOM, Crystal Reports and HTML. Must have Bachelor's degree in Computer Science, Computer Information Systems or related field. Employer will accept Master's degree in lieu of Bachelor's. Must have 6 mos. exp. in job offered or position w/ same duties. Salary: \$65,000. Send resume to Ernie Mueller, CMD Services, Inc., 3060 Premiere Parkway, Duluth, GA 30097.

SENIOR SOFTWARE ENGINEER (Boston, MA): Research, prototype, design, develop and test company software; analyze customer requirements and consult with hardware engineers on feasibility of design; design and develop software using Windows NT server development technology, Windows 98 and NT operating systems, web development technology, visual basic, and C/C++ programming; develop and direct software system testing procedures, programming, and documentation, and coordinate installation of all software systems. REOS: BS in Computer Science, Engineering or Math. & 2 years experience in the position offered or 2 years experience as a Software Engineer. Must have knowledge of Windows NT, Windows 98, Visual Basic, and C/C++. Salary \$75,000 per year. 40 hrs/Wk. Hrs: 9:00 AM to 5:00 PM, M-F. Send two copies of resume in response to Case # 20015878, Labor Exchange Office, 19 Staniford St., 1st fl., Boston, MA 02114.

COMPUTER/IT Senior Software Engineer. Herndon, Virginia: Responsible for the full life cycle of product development. Contribute to requirement analysis, architecture and design of Java applications in NT and Unix environment. Design and implement data warehousing and data mining applications. Assist managers with project scoping, scheduling and tracking. Participate in and/or lead requirements, design and code reviews. Mentor less experience software engineers in O-O and J2EE applications. Requires: B.S. or foreign equivalent in Electrical Engineering/Computer Science. 2 yrs. of exp. in job offered or as Programmer Analyst. Experience which may have been obtained concurrently must include: 2 yrs exp. in NT and Unix environment. EOE. 40hrs/wk. Send resume (no calls) to Ms. Andrea Moreno, Human Resources Manager, Focus Technologies, Inc. 13665 Dulles Technology Drive, Suite 200, Herndon, Virginia 20171.

Panteq Communications, a full-service web, multi-media and print design company, seeks to fill the position of Manager, Web & Interactive Media Services in our Roanoke, VA office. Develop and program all aspects of web, multimedia and print user interface design. Position requires degree and work experience. If interested forward resume to: Chairman, Panteq Communications, 6185 Steeple Chase Drive, Roanoke, VA 24018, or email: nmam@panteq.com

Group Leader, Statistical Programming (Stamford, CT) (Pharmaceutical industry) Design, write, validate & document computer programs using SAS v.6.12 (Statistical Analysis Software) in support of clinical trial analysis & submissions to regulatory agencies. Create, document & maintain SAS analysis data sets during statistical analyses & report generation. Develop, design & validate new programming applications, & update components of existing applications. Provide programming support expertise to bio-statisticians, clinicians & other clinical trial personnel in the monitoring & reporting of clinical trials by creating summary tables, graphs, data listings & analyses for inclusion in integrated statistical/clinical reports. Supervise 2 associate senior statistical programmers. Reqs: M.S. in Statistics, Math or Comp. Sci. + 2 yrs exp. in job offered. 35 hrs/wk; 8am-5pm M-F. Send res. to: S. Roeser, HR Dept., One Stamford Forum, Stamford, CT 06901.

Systems Analyst

Analysis, dev. & optimization of complex real-time & mission critical systems for Microsoft Windows NT, 95, 98, ME, CE, Unix; design, analysis & optimi. of network & rel. database, warehouses, OLAP appl., & data analysis solutions based on state-of-the-art methods of C.S. & math M.S. in CS or rel. (Ph.D. in Physicomathematical Sci. accept. in lieu of M.S. in CS) & 2 yrs. exp. in above pos. or 2 yrs. exp. as Consultant, Researcher, or rel. w/abil. to use C, C++, Assembler, ASP, network and/or rel. databases, ER design, prog. language parsers, Lex, Yacc, profiling software, applied statistics, numerical methods; time series analysis. 40.0 hr/wk. 9-6. Send resume to: Mr. Alec Goldis, Pres., WebOracle, Inc., 5323 Oxford Chase Way, Dunwoody, GA 30338.

Junior Consultant, Development. Assist in the design, development, implementation and maintenance of company workflow technologies based upon the analysis of company business requirements and the industry's emerging technologies. Work with Consulting Management Team to identify appropriate projects. Involved in all phases of Software Development Life Cycle (analysis, design, development, implementation and maintenance) of company's internal systems using C++, Visual C++, MFC, COM, XML, ASP, Visual Basic and Oracle. Requires: Bachelor's degree in Comp. or Info. Science, Eng. or related field. 2 yrs. exp. in the job offered or as a Senior Associate, Software Developer or Programmer/Analyst. EOE. 40 hrs/wk. Salary: \$65,000/yr. Send resume (no calls) to: KB, HealthScribe, Inc., 403 Glenn Drive, Sterling, VA 20164.

Programmer/Analysts wanted by cmprtr cnsltng co. in NYC to design, develop, test, implement & maint inventory & distrib planning & internet applics. PowerBuilder, Oracle. Internet Dvlpmnt exp. Strong relational database knowldg. SOL critical. Excellent commun, intrprsnl & org abilities imprtnt. Competitive salary, attractive benefits package. Resumes to Vitech Systems Group, 404 Park Ave So, NY, NY 10016.

Computer - Sr. Project Managers CyberBrainz int'l Group is a leader in custom software dev. Qualifications: Lotus Notes, VB/VC, Web Dev. (XML, CSS, Java Script), Architectural design, customer analysis. Must possess excellent comm. skills. Exp. in LAN/WAN admin. & training a +. BS in EE or related field w/7 yrs. exp. 40hrs/wk. Job/interview site: Wilmington. Apply today. www.cyberbrainz.net, Fax: 302-652-4603, 6 South Union St., Ste 125, Wilmington, DE 19805.

Full time Software/Web Developer to plan and develop new computer and web applications using Visual Basic 6.0, C++, Java, HTML, JAVA script, VB Script, MS Access, Oracle and Dbase. Must have Bachelor's degree in IT, CS or related field. Must have 1 yr of exp. Salary: \$67,045/yr. Attn: Rashid Malix at Malix Information Technology 6129 Oakbrook Pkwy Norcross, GA 30045.

Several computer related positions for large telecommunications consulting services company. Send resume to: Betsy Moya, Sema, 701 Waterford Way, Miami, Florida 33126.

Sr. Systems Analyst wanted by NJ based Co for job locs throughout the USA. Must have 5 years of exp. in Comp. Software developing and/or consulting and proficiency in X-Base, Clipper, RDBMS, (e.g. SOL Server, MS Access, Oracle). Respond to: HR Dept., Software Galeria, Inc., 373 E Route 46 West, Fairfield, NJ 07004. No phone calls. (Ref: RG7908IM).

"Systems Analyst: ICS, a northern NJ computer consulting firm, requires systems analyst with at least 2 yrs. experience. Skill sets: Powerbuilder; Java; C++; Foxpro; Sybase; Ingres; in Windows/Unix. Please send resume in duplicate to: Indus Consultancy Services, 140 E. Ridgewood Ave, Paramus, NJ 07652" Ref# RX23

Oracle DBA with a Bachelor's degree & 5 yrs of exp. or Masters degree & 3 yrs of exp. Must have certification as an Oracle DBA. Respond to: Configuration Management, Inc., 140 Broad Street, Red Bank, NJ 07701, Fax (732) 450-0715 (no phone calls). (Ref: RG7976IM).

Computer Programmers. B.S. Computer Science, Oracle Certified Database Administrator (Oracle 8). Microsoft Certified Professional in Designing and Implementing Application with Visual Basic 6.0. 2 yrs. exp. maint. and devel. database applications, and database web application development. 2 yrs. exp. as follows: Visual Basic, SOL, HTML, ASP, VB Script, Java-Script, ADO, ODBC, Active X, Oracle 7.3/8, MS Access 97, MS SOL Server; PC/LAN and Microsoft Window system environment. EOE. 40 hrs. per week, 9 a.m. through 5 p.m. Monday through Friday. Send Resume: Attn: ZHCP, PO Box 5275, New York, NY 10185-5275.

Computer Programmer-Convert data from project specifications, statements of problems and procedures to create or modify computer programs & develop /upgrade internet web page using Windows NT in Korean for Bible Broadcasting Co. Confer w/ supervisor about program intent, data input, output requirement. Proficient in Java Scrip, Visual C++, Macromedia Flash, Adobe Photoshop, Illustrator. HS. 2Yrs Exp. \$35,470/year. Send resume/coverletter: Bible Broadcasting Network. Charlotte, NC 28241.

divine, inc. computer software applications developers and consultants, are seeking qualified applicants for the following positions: Systems Engineer, Software Engineer, Sr. Consultant, Director of Development and Integrations, Development Director, Loader/Development Team Lead, Gateway Developer and Director. Openings are available at the following locations: Fairfield, CT., Chicago, IL., Denver, CO., Columbus, OH., and Santa Monica, CA. Interested applicants should forward their resumes: divine, inc., Attn: DK 1; 3333 Warrenville Rd., Lisle, IL. 60532 or by fax addressed to DK 1 at: 630-799-7508. EOE

Programmer/Analyst wanted in Carrollton, TX. Send resume to: HR Dept. SHC Solutions, 1205 W. Trinity Mills Rd., Suite 214, Carrollton, TX 75006.

Senior Security Consultant. Perform audits and analysis of security network infrastructure for highly confidential information in the financial industry. Required: BS/BA in Comp Sci/Bus Admin/ Finance/Engineering/Related, and 1 year experience managing internal network and external communication. Chicago, IL. Resume to Logical Networks, Inc., Human Resources, 1750 South Telegraph Road, #300, Bloomfield Hills, MI 48302. No agencies, please.

Software Engineer (St. Louis, MO multiple positions): design, test and implement object oriented management information systems and other software applications utilizing five or more of the following: C/C++, SmallTalk, Java, Unix, Oracle, RDBMS, PL/SOL, Visual Basic, GUI, and Window NT. Require B.S. in Comp. Sci., Elect. Engr., MIS (or in a closely related field) plus 2 yrs. exp. Competitive salary; 40 hr/wk; Mon.-Fri., 8:30 am-5:30 pm. Resume to Ms. Zipfel, HR, NetEffects, Inc., 500 Chesterfield Center, Ste.350, St. Louis, MO 63017. No phone call / EOE.

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Entergy, one of America's largest utility companies, has multiple openings for the following occupations in multiple locations:

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MSPs

continued from page 1

Meanwhile, big names such as Sprint, IBM Global Services, Deutsche Telekom and Qwest Communications went after management services through partnerships, acquisitions and spinoffs.

With name recognition — and more importantly, without the stigma of failed dot-coms clinging to them — these established companies are likely to pull business out from under the weaker and smaller stand-alone MSPs, industry watchers say.

“With [telephone companies] offering management services, the little MSP boutiques will not survive on their own,” says Martha Young, an analyst with Enterprise Management Associates.

Those boutiques initially plugged a management hole left by data center and hosting providers, says Carrie Lewis, an analyst with The Yankee Group. But in doing so, they showed industry heavyweights the tremendous user demand for management services. “The hosting providers realized the need for management services on top of the infrastructure they provided, but they didn’t know the demand for those services would explode overnight,” she says.

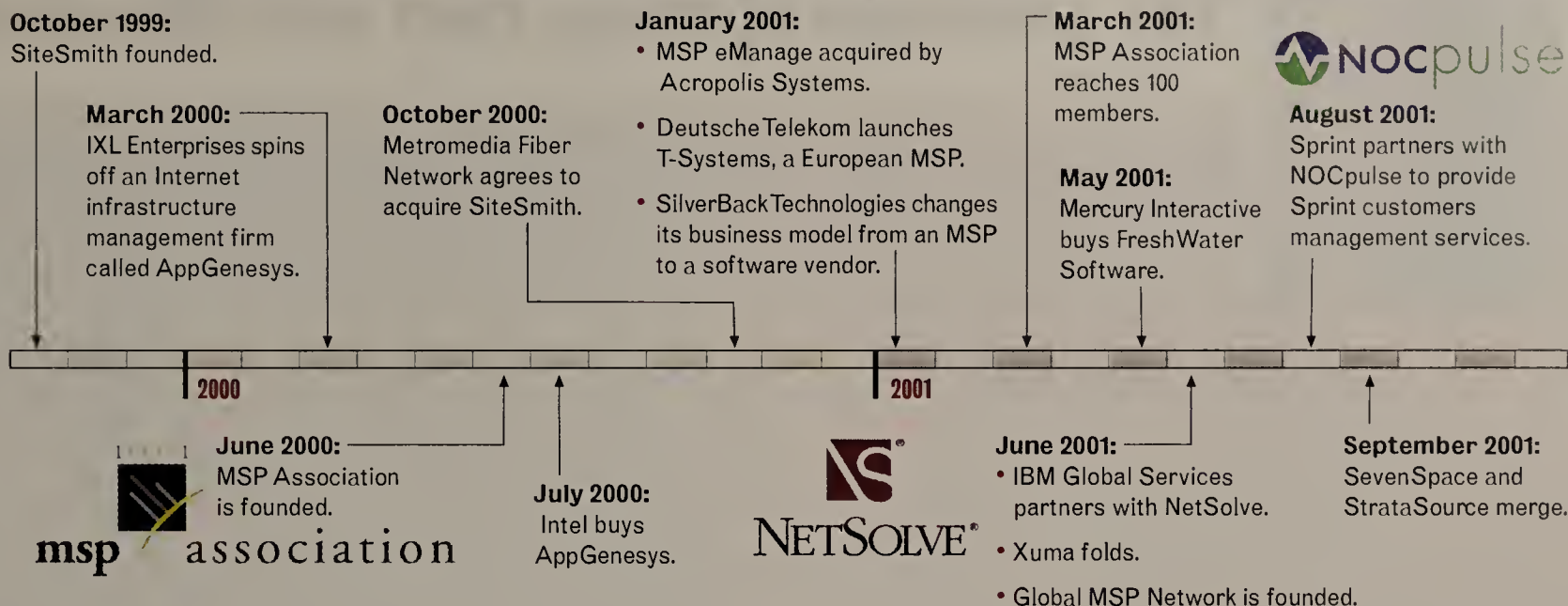
IDC shows the MSP market in 2000 reached \$172 million and projects the market will grow to as much as \$1.1 billion by 2005.

Boom and bust

The MSP concept has gained acceptance because many small companies want to deploy network and systems manage-

The fast and furious

The past two years have been tumultuous for management service providers, which after a rapid rise have seen many failures, acquisitions and dramatic shifts in business strategy.



ment software without employing a large IT staff to support it. MSPs can help by remotely monitoring customers’ networks and notifying them of problems. They usually do this over the Internet, on a subscription basis.

South Shore Mental Hospital in Quincy, Mass., uses MSP InteQ to manage critical network switches, routers and hubs.

“For me to do in-house what InteQ does would cost me a lot of money and take me a lot of time I don’t have,” says Thomas Riemer, IS manager. “Outsourcing the management takes me out of reactive mode, prevents problems from ever happening, making me and my staff look credible to our users, and it all costs less money than doing it here.”

MSPs have much of the same appeal as their cousins, application service providers, which

provide software as a service. But MSPs also suffer from the same downsides.

For instance, there have been many approaches to management services, resulting in far too many companies and confusing much of the user community, says Jasmine Noel, an analyst with the Hurwitz Group. The MSPs realized this, and tried educating users on the differences earlier this year (www.nwfusion.com, DocFinder: 7462).

Plus, the dot-com bombs instilled a certain fear in users, making them shy away from fragile start-ups — particularly when it came to the management of critical networks. “The most sensitive issue for potential MSP customers is for them to be assured that they not choose an MSP that is about to be voted off the island,” Noel says.

The long ramp up

“The MSP business is not a cheap business to be in. There are a lot of upfront costs, and it’s hard to make money as a pure-play MSP,” says Ovum analyst Marc Jacobson. “Like any business, you have to match the expense with the revenue you’re bringing in — and for most of these MSPs, the numbers don’t add up.”

Those costs vary as much as MSPs do. They usually include the cost of network and systems management software and the IPVPN connection between the MSP and customers’ networks.

The costs also include that of employing IT staff with management expertise to simultaneously monitor several customer networks. Ironically, the same high price of IT expertise that can send an MSP’s costs through the roof is

also one of the main reasons companies decide to outsource network management to an MSP.

Even the smallest MSP start-ups need at least \$500,000 to get a network operations center (NOC) running and can take as long as 12 to 18 months to establish themselves, says Oli Thordarson, CEO of MSP Alvaka Networks and chairman of the Global MSP Network, a consortium of MSPs developing business practices to provide better management services.

By contrast, a company extending its services may need as little as \$50,000 and 30 days to establish a NOC and become an MSP, he says.

Those economics have made it easier for larger players to get involved. Sprint licensed NOCpulse’s Command Center network and application management software for its Application Infrastructure Management service. IBM Global Services partnered with NetSolve to provide NetSolve services to IBM customers. And Deutsche Telekom in January spun off a stand-alone MSP, T-Systems, which has become Europe’s second-largest provider of IT and telecommunications services.

These are companies that can easily offer network management services alongside their professional and hosting services — and back them up with financial stability. MSP start-ups are left to scramble to make a living.

A rare few, such as SilverBack Technologies and NOCpulse, have morphed into software providers to survive. This strategy suits some users, such as Paula Chesbrough, vice president and senior IT officer at Eagle Bank in

Everett, Mass. “With SilverBack, we get what we need from the software without having to give up control of our network to a service provider,” she says.

Paths to success

Service providers can succeed with users who prefer to keep the number of service provider contracts to a minimum by getting management services from the same provider as other services.

One approach that is likely to gain momentum is for providers to offer a range of management capabilities and offer each as a separate service, so companies can sign on for as little or as much as they want.

Loudcloud recently unbundled its managed services to give customers the option to outsource only certain IT management functions. “Companies that just manage, say, desktops, where are they going to go with that?” Enterprise Management Associates’ Young asks.

Ultimately, the MSP idea has struck a chord with users; it’s just that many of the industry’s pioneers won’t be around to enjoy the rewards.

“All the customer [return on investment] benefits of an MSP are sound. [Working with an MSP] is cost-effective; it frees up staff resources for higher-level tasks and it provides management software that people often don’t want to buy,” Hurwitz’s Noel says. “But there is just such a huge number of them. We’ll see that diminish to only those with strong offerings and solid customer bases.” ■

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BackSpin Mark Gibbs



The schemes of mice, men and Microsoft

Last week I opened a discussion about Microsoft's new Product Activation system and, as you may have noted, I am suspicious of the idea because it may be unreliable and wind up costing you money.

First, let me be clear about the nature of the current Product Activation system: I don't think Microsoft is running some kind of underhanded scam to capture data about every user and installation.

Microsoft has gone to great pains to prove it doesn't do so by hiring Deloitte & Touche to audit the Product Activation system to confirm this.

In the "Deloitte & Touche product activation audit report" (see www.nwfusion.com, DocFinder: 7466) it says on page two: "If the user elects to activate the product over the Internet ... only the Installation ID, Internet activation request information, and for Office and Visio products, the name of the country the product is being activated in, are required to be transmitted to Microsoft."

Great! But page three says: "Tests are planned and conducted during product development to ensure that the product activation process functions as specified in the functional requirements specification," which sounds like Microsoft is saying the process works.

Actually, all Deloitte & Touche is really saying is

that Product Activation works as specified in the design documents, not that it works in the real world. The Product Activation process has bugs.

A couple of weeks ago I successfully installed a release of Office XP with FrontPage. I then installed a release of Office XP without FrontPage on the same machine.

When I tried to activate the second installation, the process failed and told me to phone the toll-free Product Activation line. OK, so I called and went, somewhat inevitably, to the Land of Hold.

When I finally spoke to someone, she was clueless. The error message produced might as well have been in Urdu as far as she was concerned. "You need to call installation support," was the solution, and Installation Support was, of course, not a toll-free number.

To make a long story short, I had to uninstall everything to do with Office XP and reinstall. Although the two versions of Office XP I used were apparently only different by the inclusion of FrontPage and were licensed separately, they apparently register as the same product.

So, on the second activation the presence of FrontPage was detected, and the new fingerprint was considered to be invalid, as the second installation didn't have FrontPage.

I spent 75 minutes on the phone and at least another hour and a half installing and uninstalling and reinstalling. Microsoft offered to pay for my

phone call if I would submit documentation of the phone charges. How nice of them.

For those who consider this to be an unusual situation with Product Activation, I completely agree. The Product Activation system apparently works fine ... mostly.

It is these odd, marginal situations that tell you the best laid schemes of mice and men and Microsoft — "Gang aft agley, / An'lea'e us nought but grief an' pain, / For promis'd joy!"

If you are one of those who say there's nothing to worry about, just wait until you have a problem with Product Activation. And just wait for the first virus (probably transmitted via Outlook) that targets Product Activation and forces reactivation.

What I find particularly curious is the double standards at work. We've talked a lot about how Microsoft should be held accountable for its software problems but we know full well that nothing is going to change. Meanwhile, we are being forced into being orders of magnitude more accountable. Is this equitable?

This is the thin end of the wedge and the future may well see far more comprehensive and intrusive license compliance systems than anything we have yet seen. This is just the softening up phase.

If you're not too busy preparing for Christmas, activate at nwcolumn@gibbs.com. In the meantime, happy holidays!



'Net Buzz News, insights, opinions and oddities

Paul McNamara

When it comes to life's big problems — war, poverty, teenage grocery clerks with grotesque body piercings — the so-called power of the press can be overrated.

However, bring us a nickel-and-dime consumer complaint and your chances of getting satisfaction are every bit as good, maybe better, than if you were to turn to a regulatory or law enforcement agency.

Ask Steve Jones, 'Net Buzz reader, director of engineering support for an electronics manufacturer, and one very unhappy user of AmericanGreetings.com. This site lets people send those popular e-cards to every friend and business contact in their address book, while making life miserable for network managers who have to deal with the deluge. The company claims 12.5 million visitors a month use its service, thanks to partnerships with AOL and Yahoo.

Jones' beef?

AmericanGreetings.com has "infonapped" — his word — the free address book his family had kept on the site.

"We were using the online address book as a convenient place to keep addresses so that my wife and I could access them while she was at home and I was at work," Jones says.

The place was convenient until AmericanGreetings.com suddenly decided to start charging \$11.95 for access to its full selection of e-cards and ancillary services such as that address book. Users are locked out of their existing accounts until they fork over the money.

The way Jones sees things, AmericanGreetings.com was telling him: Pay up if you ever want to see your information again. He took umbrage, naturally enough, then did a smart thing: fired off an e-mail to yours truly.

"This is largely a matter of principle," Jones acknowledges. "I am not outraged at not getting access to our addresses, as we knew the risks inherent with the Inter-

net — that is, it's the Internet, with all of its bruises and bumps — but rather having our information withheld pending a payment of which I was not apprised."

There is disagreement on that point. Jones insists he received no prior notice of the fee system, but AmericanGreetings.com President Charles Fink tells me that customers "got an e-mail a few hours before" the fees were imposed.

Why so little notice?

"There are so few people who have things like address books [on his company's site], that we just decided to deal with them on a case-by-case basis," Fink says. "It was not an intentional bait-and-switch; it was just a marketing problem that didn't have a really great solution other than trying to make it up to them after the fact."

That's a curious form of customer relationship management, but Fink isn't brushing off Jones altogether.

"He certainly has a legitimate beef, and we're trying to address his problem and the problem of users like him as quickly as we can in an environment where we are swamped and a little bit understaffed," Fink says.

Address the problem how?

Fink says his company is willing to grant users who don't want to buy its service a free password good for one month that would get them into their old address books and even let them send e-cards.

Jones says no one has told him this. In fact, he has been unable to get any information out of AmericanGreetings.com, either by telephone or e-mail.

Fink gave me his personal e-mail address and suggested that Jones contact him directly. "I'll get him pushed up to the top of the queue so that somebody handles his problem today," he assured me.

That was Tuesday. Jones sent Fink an e-mail requesting the password on Wednesday. At press time Friday, Jones had yet to hear from Fink or AmericanGreetings.

However, he says the old password to his address book has been restored. Score one for the press.

Got a gripe of your own? The address is buzz@nww.com.

"Did you back up all my files?"

Translation: I think I just deleted all my files.

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